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EDITED BY GURNEY WILSON, F.L.S.

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TO

ALBERT C. BURRAGE, ESQ.,

PRESIDENT OF BOTH THE

AMERICAN ORCHID SOCIETY

AND THE

MASSACHUSETTS HORTICULTURAL SOCIETY,

THIS THIRTY-FIRST VOLUME OF THE "ORCHID REVIEW"

IS CORDIALLY DEDICATED.

THE ORCHID REVIEW.

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NOTES.

TROPICAL TERATOLOGY.—A recent issue of *Annales du Jardin Botanique de Buitenzorg* (vol. xxxii, pt. i) contains "Studies in Tropical Teratology" by Dr. J. C. Costerus and Dr J. J. Smith, who state anew a great number of aberrations leading to simple variations, partly to atavisms, to serious disturbances of the normal course of development, and also to dimery and pseudodimery.

GASTRODIA MALAYANA.—The *Gardens' Bulletin*, Straits Settlements (vol. II, No. 12), contains a note by Mr. I. H. Burkill that Gastrodia malayana, an interesting leafless Orchid, has been found newly in Penang by Mr. Mohamed Haniff in a specimen 32 inches high. Such a height being far in excess of what it is known to reach in Singapore and neighbouring parts of the State of Johor.

DENDROBIUM PHALÆNOPSIS.—R. D. Fitzgerald gives a double-page coloured illustration of this species in his *Australian Orchids*. "I give," said he, "this finest of the Australian Dendrobes the name of Phalænopsis, from the likeness of its flowers to moths, and also its likeness to the genus Phalænopsis, the flowers having a strong resemblance to those of that genus." When the plant from which the description was taken flowered again, it produced no less than 300 flowers. Many of our readers remember the wonderful exhibit of Dendrobium Phalænopsis exhibited by G. F. Moore, Esq., some years ago at the Royal Horticultural Society, when a Gold Medal was awarded. About 400 of these plants subsequently passed into the collection of Sir Jeremiah Colman, Bart., where the beautiful effect produced by numerous varieties is greatly appreciated. Among them being the Gatton Blue variety, with large and distinct flowers. Many attempts to obtain seed of this species, as well as hybrids thereof, have been made, but although pollination appears to be successfully followed by fertilisation, the immature pods decay after a period of about six months. It would be interesting to learn if any of our readers have been successful

in obtaining ripe seed. Apart from Dendrobium Leeanum, the natural hybrid between Phalænopsis and superbiens, no other hybrid of D. Phalænopsis has been recorded.

ODONTOGLOSSUM CRISPUM SOLUM.—The curious style of blotching seen in this remarkable variety does not appear to be capable of being reproduced by the hybridists. Several crosses have been effected in the Gatton Park collection, and in more than a dozen plants that have flowered, representing more than one distinct cross, not a single example inherits its well-known richly-coloured lip.

ORCHIDACEÆ QUÆDAM AMERICANÆ.—Under this title Prof. Oakes Ames has compiled, as No. 1 of Schedulæ Orchidianæ, a descriptive list of forty-five Orchids, the prefatory note stating that recent studies of tropical American Orchids have brought to light species which seem to be undescribed or which have been inadequately described. The descriptions have been prepared from herbarium material, and the arrangement of the genera follows the sequence proposed in Engler and Prantl's "Die Pflanzenfamilien." The forty-five species belong to the following genera: Epidendrum, 18; Stelis, 13; Pleurothallis, 7; Physosiphon, 2; Gomphicis, 2; Elleanthus, 2; and Lepanthes, 1. Epidendrum pruinosum was originally published with a most inadequate description and has remained obscure. Although the type specimen was preserved by Richard together with a colour sketch, no trace of it has been discovered in the Richard Herbarium at the Jardin des Plantes in Paris. But Prof. Oakes Ames, when recently examining the Reichenbachian Herbarium at Vienna, found both the original specimen and the coloured drawing. With the aid of this material it has been possible to identify a Mexican specimen distributed many years ago by C. A. Purpus under the number 3616.

ORCHID COLLECTION FOR DISPOSAL.—Offers are required for a fine collection of Orchids, numbering about a thousand plants, which certain Executors have for disposal. Particulars of same can be obtained through the Editor of the *Orchid Review*.

MAXILLARIA VARIABILIS.—A native of Mexico that was in cultivation in several European gardens in 1837 and perhaps earlier. It appears to have been imported by Messrs. Low & Co., through Henchmann. It is one of the scandent Maxillarias, and produces flowers an inch across the lateral sepals, variable in colour, though generally deep sanguineous purple.

LIEUT.-COMMANDER PRINCE TADASHIGE SHIMADZU.

THROUGHOUT the last two years, during his residence in England, Lieut.-Commander H.H. Prince Tadashige Shimadzu has honoured the Royal Horticultural Society's Orchid Committee by his regular attendance. His farewell on Tuesday, December 12th, was marked by an appropriate speech from the Chairman, Sir Jeremiah Colman, Bart., who remarked how much he and members of the Committee appreciated the presence of the Prince at the Royal Horticultural Society.

Sir Jeremiah referred to the fact that not only had the Prince an Orchid collection of his own, but he was a prominent member of the Imperial Orchid Society of Japan, which is doing so much for Orchid growing in that country. He expressed the hope that the Prince's close association with the Orchid Committee and its members would prove of very real advantage, and that Japan might in the near future become renowned for its Orchid collections.

Having assured the Prince that he was entirely at his disposal for any service which he could render, Sir Jeremiah felt sure that the members of the Committee, both Amateur and Trade, would be only too glad to help. The Prince had secured the respect of every member of the Committee; his presence and his valuable knowledge will be much missed; and in bidding him farewell Sir Jeremiah offered him the right hand of fellowship, symbolical of a close association between the Orchid growers of Britain and those of Japan.

Prince Shimadzu, in reply, remarked how much he had enjoyed his visit and how greatly he had been interested in the Orchid Committee meetings of the Royal Horticultural Society. It was a matter of great regret that this was his last attendance. It would be a subject of considerable pleasure for him to further the interests of English Orchid growers in whatever way he could on his return to Japan. He would always have pleasant recollections of the enjoyable time he spent in England, and he wished to say "Au Revior," not good-bye. The remarks of the Prince were heartily applauded by all members of the Committee, with several of whom he shook hands warmly before leaving the Hall. Later in the day, Prince and Princess Shimadzu visited St. James's Palace, where they were received by the Prince of Wales.

On the occasion of a recent visit of Prince and Princess Shimadzu to Gatton Park, they presented Sir Jeremiah Colman with a personal memento of appreciation in the form of two exquisite examples of Satsuma ware. These vases, which are of beautiful design, were specially made for Sir Jeremiah, and were produced upon the Prince's estate in Japan, where he is encouraging an extension of the manufacture of this renowned ware.

PLEIONE HOOKERIANA.

BY the death of Mr. H. J. Elwes, which took place on November 26th, 1922, the horticultural world has lost one of its greatest enthusiasts. He travelled in many countries, both in Asia and America, and enriched our knowlege of plants considerably, not only with careful notes, but with actual specimens. Orchids never missed his attention, and Pleiones were special favourites with him on account of their delicate beauty and the small amount of space they occupy in a greenhouse.

The genus Pleione was established by Don in 1825. Lindley soon afterwards reduced it to Cœlogyne, but subsequently wished to keep it apart, and in 1852 remarked, "The habit of these plants is so peculiar that it seems desirable to separate them from Cœlogyne, if any character can be found, and we think the membranous bracts, and strongly saccate lips with purple veins, of Pleione may be taken to offer a sufficient distinction."

P. Hookeriana was discovered in 1849 by Sir J. D. Hooker, in the Sikkim Himalayas at 7,000-10,000 feet elevation, where the small globular pseudobulbs are buried in moss growing on rocks, or on the branches of trees, and are difficult to find when at rest. But it was not until 1876, or the following year, that it was introduced to English gardens by Mr. H. J. Elwes, who cultivated it with continuous success at Colesborne, Gloucestershire. Our reproduced photograph, showing P. Hookeriana in full flower, is especially interesting as the plants are believed to be descendants of the first one sent to England.

In April, 1914, Mr. Elwes found P. Hookeriana on the Singalelah range at 9,000-11,000 feet elevation, and at a greater height than any other epiphytic Orchid he knew of in the Himalaya. Though often exposed to 10-15 degrees of frost, and covered with snow for a few days at a time, the plants require such a damp atmosphere all through the growing season that it is useless attempting their cultivation out of doors.

In the variety brachyglossa, which flowered in the collection of Sir Trevor Lawrence in 1887, the lip is shorter and more open than in the type, white with a yellow disc on which are some brown spots. In the Burford collection, these plants, along with P. humilis and P. Reichenbachiana, were found to thrive best when cultivated in pans suspended in the cool atmosphere of the Odontoglossum house.

Pleiones are not difficult subjects to cultivate, so long as their requirements are attended to. As soon as the flowers have faded, roots will be produced from the new shoots, and the work of adding additional compost or entirely fresh material should then be carried out. Ample drainage should be provided by placing several inches of crocks in the bottom of the pots, or a less quantity if shallow pans are used. A layer of moss should

cover these to prevent the upper mixture of compost from working down into them. Pots or pans eight inches in diameter will hold about 18 bulbs. The potting compost is best composed of equal parts fibrous loam, peat or other fibre, and chopped sphagnum moss, intermixed with coarse silver sand. Fill up with compost to within an inch of the brim of the pot or

PLEIONE HOOKERIANA

pan, and surface with living moss, the latter being an essential point in their successful cultivation. During active growth the foliage must be kept clean by frequent syringing underneath, at least once a day, for attacks of red spider are common. After being repotted, water should be applied sparingly and with care until the roots are well into the compost. Plentiful supplies should be given during the growing season, after which lesser quantities are needed.

NOTES ON THE FERTILISATION OF ORCHIDS.

THE December issue of the *Journal of Botany* (vol. lx., p. 359) contains "Notes on the Fertilisation of Orchids," by Colonel M. J. Godfery, F.L.S. The author remarks that while it is comparatively easy to witness the visits of insects to spur-bearing Orchids, such as Orchis Morio and O. mascula, it is quite a different matter with spurless genera secreting no nectar, such as Ophrys and Cephalanthera. Regarding these plants without nectar, hundreds of flowering specimens may be watched year after year without once seeing an insect alight on them. Last May Colonel Godfery watched a colony of 74 spikes of Ophrys litigiosa for long periods on various days, but in vain.

On one occasion in March, 1922, twenty spikes of Ophrys arachnitiformis were gathered near Hyères, and an examination showed that every flower had been visited by an insect, except the top one in each spike; in most cases both pollinia had been removed, and there was also pollen on the stigma. Observations proved that this species is visited by at least two species of bees, and is extremely well fertilised. "It presents a marked contrast to the numerous other species of Ophrys in the South of France, all my efforts to witness the fertilisation of which have so far been in vain." Reference is also made to Ophrys apifera.

A colony of Orchis lactea was found near Hyères growing in loose gritty soil consisting of disintegrated schistose rocks. "On many of the plants," remarks Colonel Godfery, "a small white crab-like spider was lying in wait amongst the flowers, its protective colouring rendering it inconspicuous. No bees were about, but it was a cloudy afternoon. I found on the ground, at the foot of a spike, a spider which had gripped a bee by the neck and had evidently fallen with its victim from the flower-spike. I put it in my vasculum, and on reaching home found that it still held the bee, many times larger than itself, in its jaws, always carrying it round to the opposite side of the spike to escape observation."

Of Cephalanthera rubra it is stated that on a very wet morning a bee came to some spikes of this species in a mixed bunch of flowers at the open window of a room, and so engrossed was he in the third flower visited that his capture was easily effected by means of a pill-box. Observations on C. grandiflora "afford fair proof that this species, in spite of its almost habitual self-fertilisation, is still occasionally, over a wide extent of its range, cross-fertilised by insects."

Limodorum abortivum, a leafless saprophyte nearly allied to Cephalanthera, proved particularly wearisome to watch, as the bees were so wary that they disappeared at the slightest movement. It was necessary to stand in the hot sun with the net ready to strike.

POLLINATION OF SATYRIUM BICALLOSUM.

THE issue for September, 1922, of *Annals of the Bolus Herbarium*, South Africa, contains an interesting article on the pollination of Satyrium bicallosum, by S. Garside. In the literature consulted by the author no record has been found of an insect having been seen to enter an Orchid flower and remove the pollinia from any South African Orchid. This lack of information is somewhat remarkable, considering that many of the numerous species which occur in the south-western region of South Africa are very common. The possibility that many of the highly-scented greenish Orchids might be pollinated by night-flying insects might account for our scant knowledge of these. It is stated that observation of such a brightly coloured Orchid as the scarlet Satyrium coriifolium, a species with both attractive colour and abundant nectar, shows that the visits of diurnal insects are by no means frequent.

Mr. Garside's attention was first directed to Satyrium bicallosum by the following statement by Dr. H. Bolus (*Orch. Cape Pen.*, p. 129): "In the structure of the column this species differs from any other known to me. The anther, instead of hanging vertically under the rostellum with its glands pointing forward, as is the typical structure in the genus, appears as if pushed up against the apex of the column, so as to lie nearly horizontal, with the glands turned to the back of the flower, and the stigma completely covered and hidden from view. The economy of its fertilisation is a puzzle to me, for the appearance is as if the process were carefully prevented. But I have not had the opportunity of watching it, and have never seen any insect or trace of insect work on the plant."

After describing the reproductive organs, Mr. Garside remarks: "It will be realised that each half of the flower has its own entrance, with its alighting place for insects; its own pollinium, with adhesive disc projecting laterally into the passage, and its own stigmatic surface, placed just above the adhesive disc. Each half of the flower also has its own spur. The possibility of the separate functioning of the halves of a zygomorphic flower is of great interest." Search was then made for the pollinating insects, and the author was fortunate enough to discover them by the following method. The plants were growing in a moist place were there was a trickle of water through the soil. Numerous plants of Drosera hilaris were in the same locality, and it occurred to Mr. Garside that if a Satyrium plant could be found in the centre of a group of Drosera, the pollinating insect would be seen captured. The required combination was soon found: a fine Satyrium almost entirely surrounded by Drosera. On examining the leaves of the latter, no less than a dozen small black flies were seen to have become stuck to the tentacles, each fly with one, two or even three pollinia attached to it.

After a further search, two other specimens of the fly—a species of Sciara—were seen running rapidly over the ground. They did not take flight when disturbed, being, no doubt, overburdened by the pollinia. During the daytime, the flies concerned in the pollination of S. bicallosum are not frequently seen, but at dusk they appear in large numbers, and fly fairly actively. It seems probable, concludes Mr. Garside, that cross-pollination takes place most frequently at nightfall, and that once a fly has a pollinium attached, it does not usually again take flight, but runs from flower to flower, and from inflorescence to inflorescence. Almost all flowers from the lower part of the spike had both pollinia removed after the flower had been open for a night, and, as the plants set seed abundantly, cross-pollination must be very effectively carried out.

Regarding the processes of fertilisation of South African Orchids, it is thirty-five years since Bolus remarked that the field of investigation is large and deeply interesting, and will afford a rich harvest of results to those who may have the time and patience to labour in it.

LÆLIOCATTLEYA JOSETTE.—A flower of this delightful novelty comes from the collection of Mons. Charles Sladden, of Liège, Belgium, who raised it by crossing C. Octave Doin with Lc. St. Gothard. The seed was sown in 1918, and the first flower, which has just been produced on a bulb only three inches high, promises well for the batch, for in size it is equal to that of a typical C. labiata, while the colour of the sepals and broad petals is a pleasing combination of rose and terra-cotta tints, the handsome labellum being rich purple with a golden throat.

LÆLIA JUVENILIS.—Originally raised in 1890, by M. Bleu, of Paris, this hybrid between L. Perrinii and L. pumila was subsequently figured in *Lindenia* (vol. ix, t. 415), and on November 24th, 1896, it received an Award of Merit when exhibited at the Royal Horticultural Society by Sir Trevor Lawrence. At the sale of Sir Trevor's collection, a seedling labelled L. pumila × L. Perrinii alba was purchased by Wm. Salkeld, Esq., Kirkoswald, Cumberland, and on flowering proved almost identical with the one figured in Lindenia. Following the rule of primary hybrids, it is intermediate in character, although as happens when a white variety is crossed with a coloured one the flowers revert to the normal rosy-mauve colour. Mr. Salkeld mentions that his plant is a robust grower and flowers every year in November, the flower being produced without a sheath. At the R.H.S. meeting of November 28th, 1922, Messrs. Stuart Low exhibited another early-day hybrid in Lælio cattleya Decia (L. Perrinii × C. aurea), with whitish sepals and petals, due to the influence of the yellow in aurea, and a coloured lip.

EPIDENDRUM PRISMATOCARPUM

THIS elegant species was discovered by Warscewicz in 1849, on the Chiriqui Volcano, Central America, at an elevation of from 4,500-5,000 feet. It was described by Reichenbach in 1852, and introduced to cultivation by Bridges in 1856. In its native home it is said to flower in the month of November, but under cultivation in Europe the period is

EPIDENDRUM PRISMATOCARPUM.

usually from May to August. The inflorescence is erect in habit, and bears many flowers 1½ inch in diameter; the sepals and petals greenish-yellow, with blackish purple spotting; the lip trowel-shaped, rose-purple tipped with yellow, and with two raised lines on the disc, as well as a pair of rounded auricles at the base. The specific name refers to the three sharp angles of the short ovary. Our reproduced photograph shows one of three spikes that was produced on a specimen plant in the collection of the late Mr. J. J. Neale, of Oxton, Kenton. The species is one that can be well recommended for inclusion in an amateur's collection and succeeds admirably in the intermediate house.

ORCHIS LATIFOLIA.

AT the meeting of the Linnean Society, held November 16th, 1922, the first communication was by Mr. A. J. Wilmot, B.A., F.L.S., entitled "Orchis latifolia, Linn. (Marsh Orchis) from the Island of Oeland, Sweden, obtained from the station in which it was found by Linnæus in 1741." It was pointed out that *O. latifolia*, L. 1753, was a general name for Marsh Orchids, but in 1755 this name was limited without varieties, and separated from *O. incarnata* and *O. sambucina*. The diagnosis is general, and comes from Linnæus's article in Act. Upsal. 1740, where it applies mainly to unspotted-leaved plants. The plant referred to as "it. oel. 48" was *O. sambucina*, but the "O. palmata palustris non maculata" of "it. oel. 48" was *prætermissa*. This is referred by Linnæus in MS. notes to Fl. Suec. (ed. 1) no. 728 var. (728 being referred to under *O. latifolia*), and is what remains when *O. sambucina* has been separated. The herbarium specimen is also *O. prætermissa*, matching one brought back by Mr. Edwards from the identical spot in Oeland. The plant of the "Hortus Cliffortianus" which grew around Haarlem might possibly be *O. prætermissa*, but Linnæus said "Variat foliis maculatis & immaculatis," which indicates that hybrids with *O. maculata*, or perhaps *O. majalis*, were included. This, was however, his earliest work on the subject, being published in 1737 before he saw Vaillant's Orchids or travelled in Oeland. The Vaillant plant referred to, seen *in situ* by Linnæus in 1738, was the most common one round Paris with unspotted leaves; also probably *O. prætermissa*. Of the Bauhin plants, the "type" of 1753 and the var β, which are respectively the var. α and "type" of his 1740 paper in Act. Upsal., are both unspotted-leaved plants, the "non maculata" and "latifola" of the pre-Linnean authors; most likely both were forms of *O. prætermissa*. The var. ϵ of the 'Species Plantarum' was probably *O. majalis*, for the figure in Rudb. Elys. is good *majalis*.

All of this indicates that by *O. latifolia* Linnæus had primarily in mind *O. prætermissa*. But Linnæus, in his description of 1755, says that the leaves are slightly spotted. This may refer to the decay spots on the plant in his herbarium, for this note was made when he described *O. incarnata* in the MS. notes in his copy of the 'Flora Suecica,' ed. 1, or it may refer to the hybrid forms with spotted leaves which occur where *O. prætermissa* and *O. maculata* occur together. The description of *O. incarnata* refers to the form so named by British botanists to-day. Linnæus knew *O. prætermissa*, and included it under n. 728 of Fl. Suec. ed. 1, which became *O. latifolia*. It seems fairly clear that by *O. latifolia* Linnæus in 1755 understood *O. prætermissa*, perhaps including the hybrid with *maculata*. Certainly he did not intend *O. majalis*, Reichb.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

WITH the commencement of the New Year, the cultivator will be looking forward to brighter days that are so essential to the health of plant life generally, and Orchids in particular. The weather conditions at this time of the year are apt to change quickly, which oftimes cause a difficulty in maintaining the desired temperatures in the houses, but the following readings should be aimed at as near as circumstances will permit :

Odontoglossum or Cool House, 50° to 52° at night to 55° Fahr. during the middle of the day, with sun heat the thermometer may be allowed to rise to 60°. Cattleya or Intermediate House, 60° at night to 65° Fahr. by day, rising to 68° by sun heat. East Indian or Warmest House, 65° at night to 75° during the middle of the day.

A buoyant, moist atmosphere must be created in each house, by damping the stages and floors at least once daily, but in this respect the grower should be guided by the amount of fire heat required to maintain the temperatures to the proper figure. The temperatures I have given should be governed more or less by the weather conditions. When it is extremely cold a degree or two below those mentioned will cause less harm to the plants than excessive fire heat. The heat from the hot water system may be economised with advantage by utilising some protective covering over the roof exterior, but this should always be removed as early as possible in the morning, or it will form an obstruction to the light. When watering is necessary select, if possible, a bright morning for the work, always remembering that careful watering is one of the main secrets of success in the culture of Orchids. At this particular period some plants may not look quite so robust as may be desired, their foliage looking rather more yellow than usual, and their pseudo-bulbs having become slightly shrivelled ; such plants should be watered with great care, keeping them on the dry side until new growth and root action recommences. If too much water is applied to those weakly plants the roots will decay and bring about disease of the leaves and pseudo-bulbs.

Ventilation is essential on all favourable occasions, but discrimination must be exercised in the admission of air, so that no plant is placed in a draught, or this will prove most injurious ; endeavour to admit air through the ventilators below the stage on the leeward side of the house. By the end of the month the washing down and cleansing of the houses should be completed, and before replacing the plants in their respective positions each one should be sponged with a suitable nicotine insecticide, taking care to dislodge any scale insects that may be present on the leaves and rhizomes. This overhauling of the plants will afford a favourable opportunity to

determine any that need repotting. It will probably be found that very few subjects will need potting at this period, but where a plant is at a suitable stage for the operation it may be done at any time, providing careful watering is practised until new root action commences.

CALANTHES.—From the middle of November to the end of the present month varieties of Calanthes of the Veitchii and vestita section will have been in bloom, together with the white variety, C. Harrisii, and as the spikes are removed they need a decided rest. It is necessary to thoroughly harden and mature the pseudo-bulbs, so that when the growing season recommences the new growths will start with renewed vigour. Immediately the flower spikes are cut, water should be entirely withheld ftom the roots, and the plants may be placed on a dry shelf, close to the roof glass, in a house where the temperature does not fall below 55°, and where they may obtain full benefit of all the sunlight. Before placing the plants in their resting quarters it is advisable to thoroughly clean each pseudobulb from scale insects. The later flowering varieties of the C. Regneri section, that bloom in the spring, must still be afforded water occasionally until their flowering season is past.

CYPRIPEDIUMS.—Plants of the winter flowering section of Cypripediums will now be at their best, and, as they pass out of flower, should be given attention at the roots. Those that are in a very pot-bound condition should be repotted, and if the variety is a choice one, and it is desired to increase the stock, the plant may be divided into several pieces and potted up separately into small pots, while others should be potted on into receptacles two sizes larger, without much root disturbance at the base. Where good fibrous loam is procurable it should form the chief ingredient of the rooting medium; remove all the earthly portions and break up rather roughly, adding a small quantity of good fibrous peat or Osmunda fibre, with sufficient crushed crocks to keep the whole porous. The pots should be well drained, and for a time after root disturbance the compost should be kept rather on the dry side, but as soon as the young roots are seen to be pushing in the new material they should be kept continually moist.

DENDROBIUMS.—Many Dendrobiums, including both species and hybrids, are now showing their flower buds. If it is decided to have a succession of bloom, some of the more forward plants may be removed from their resting quarters into a slightly higher temperature, but care must be taken that the plants are not subjected to too much heat and moisture, or they will start rapidly into growth and produce inferior flowers. They should be afforded only sufficient water at the roots to keep their pseudo-bulbs plump, for if moisture is too liberally applied it will cause many of the buds to turn yellow and drop. The Cattleya house is a very suitable place to grow the plants until the flower buds expand. Keep a sharp look-out for slugs, which

damage the flower buds as soon as the latter commence to develope; place traps of damp bran or lettuce leaves about the house near to the plants, and search for the pests at night and early mornings. Recently imported plants of Dendrobiums should be laid for a few days on a stage in a house having an intermediate temperature. They should be carefully examined with a view to the removal of decayed portions, and afterwards washed with an approved insecticide. When they are dry again, they should be placed into pots just large enough to accommodate the roots, and each plant be tied firmly to a stick. In potting, half fill the receptacles with crocks, and the remaining space up to the base of the plants with a compost of equal parts sphagnum moss and finely chopped Osmunda fibre. Grow the plants in an intermediate temperature until about the middle of March, when they may receive additional warmth.

NONSYMBIOTIC GERMINATION OF ORCHID SEEDS.

REFERENCE was made in our May issue, p. 135, to Mr. Lewis Knudson's method of germinating Orchid seed without the aid of fungus. The *Garden Magazine*, U.S.A., in its issue for November, contains an article by Mr. Knudson on raising seedlings on sugar, accompanied by reproduced photographs of tubes and flasks containing seedlings. He remarks that the undeveloped state of the embryo, together with the lack of food in storage, is undoubtedly partly responsible for the difficulty and uncertainty encountered in germinating Orchid seed. This suggested that germination should proceed if the embryo were artificially supplied with food, which is the underlying principle of the method envolved. The problem was to supply the Orchid embryo with sugar, which is made by plants, and constitutes one of their important foods. In order that the sugar might not be decomposed by micro-organisms, and products formed which might kill the embryo, the seedlings were grown under aseptic conditions in tubes and flasks. They were, in fact "bottle-fed" in their infancy.

Mr. Knudson uses a nutrient medium composed of:—

	Grams.		Grams.
Calcium nitrate	1.00	Ammonium sulphate ...	0.50
Dibasic potassium phosphate	0.25	Agar	15.00
Magnesium sulphate ...	0.25	Cane sugar	20.00
Ferric chloride	0.05	Distilled water ...	1000.00

This is first heated to dissolve the agar and is then placed in the tubes, which are plugged with cotton and sterilized under steam pressure. When cool, the nutrient substance is in the form of a jelly, and it is upon this that the seed is sown. When sufficiently grown, the seedlings are transferred to large flasks, containing the same culture medium as used in the tubes. A

high percentage of germination is obtained, and it is said that when once the seed has been sown, or the seedlings transplanted, no further attention is required until the time when pots are necessary. The seedlings are placed in pots when they have five or six leaves, and roots an inch or more in length.

Under the conditions of growth existing in the tubes or flasks, the water is partially lost by evaporation, which results in a gradual hardening of the plants, so that they can be moved without danger. Mr. Knudson has shipped tube cultures to Florida, where the seedlings were transplanted, and where, four months later, out of 800 so treated, very few died. The genera in which success has been obtained include Cattleya, Epidendrum, Dendrobium, Lælia, and Phalænopsis, the germination having averaged close to 100 per cent. As Odontoglossums and Odontiodas are not mentioned, it appears doubtful whether they can be raised by this method with equal success.

LÆLIOCATTLEYA ARIES VAR. LADY THOM.—Among the excellent results that have been produced from Læliocattleya Henry Greenwood (C. Hardyana × Lc. Schilleriana) are the superb Lc. J. F. Birkbeck, Lc. Sir Douglas Haig, Lc. Nairobe, and Lc. Aries (Lc. Henry Greenwood × C. Warscewiczii). At the recent Blackburn Show, J. McCartney, Esq., Hey House, Bolton, exhibited Lc. Aries var. Lady Thom, a very fine variety named in compliment to the President. The segments of this flower are unusually stiff textured, and of a bright rosy-mauve colour, the labellum has the whole of its front lobe ruby-crimson, while each of the side lobes bears a yellow disc that is characteristic of C. Warscewiczii.

SOPHROLÆLIOCATTLEYA MARATHON.—In the production of this hybrid between C. Empress Frederick (aurea × Mossiæ) and Sl. Psyche (L. cinnabarina × S. grandiflora), it will be seen that the latter parent is composed of two red flowering species, and these have contributed the beautiful reddish tints that give so much satisfaction to owners of choice varieties of Slc. Marathon. The fine results achieved by the above combination led to Slc. Marathon itself being used as a parent, and with such success that, in the words of a hybridist, it seems impossible to make a bad cross with it. We may recall the magnificent Potinara Juliettæ, obtained by crossing Marathon with Brassocattleya Ena, as well as Slc. Vesuvius, Slc. Joyce Hanmer, and many others. In Slc. Warnathon, obtained by crossing C. Warneri with Slc. Marathon, there exists a particularly pleasing hybrid with soft reddish tints on a terra-cotta ground colour. It has recently flowered for the second time in the collection of P. Smith, Esq., Haddon House, Ashton-on-Mersey (gr. Mr. S. W. Thompson).

CYPRIPEDIUM VENETIA.

COMPARED with some of the present day hybrids the parentage of Cypripedium Venetia is simple, for it consists of C. Morganiæ (superbiens × Stonei) mated with C. Lawrenceanum. Of the three species

CYPRIPEDIUM VENETIA.

concerned, both superbiens and Lawrenceanum have tessellated foliage while that of C. Stonei is dark green. In C. Venetia the foliage is light

yellowish-green, with numerous dark green reticulated nerves. Before photographing this plant, the tall spike was severed and its lower part removed in order to bring it within the measurements of a suitable block.

The dorsal sepal of the flower is 2½ inches long, and is slighly reflexed at the sides; the ground colour creamy white at the apex and base, the remainder suffused with light purple, the vertical lines being purple brown. The petals are four inches long, yellowish-white at the base, passing into brownish-purple towards the apex, and spotted with purple-brown.

BULBOPHYLLUM BARBIGERUM.

OF all the so-called botanical Orchids, probably none has received so much attention or been so frequently noticed in the press reports of shows than Bulbophyllum barbigerum. It is a native of Sierra Leone, whence it was first imported by Loddiges, in 1833, and flowered in 1836. This latter date is sometimes quoted as the date of introduction, but in a scarce little book entitled "Orchideæ in the collection of Conrad Loddiges & Sons, Hackney, near London," 1844, the year of introduction is given as 1833. This plant is also mentioned in an earlier edition of the above book published in 1839.

This singular plant was originally described by Lindley in 1837 (*Bot. Reg*, *t.* 1942) with the following remarks: "The lip is one of the most extraordinary organs known even among Orchidaceous plants; it is a long, narrow, flexuose, sharp-pointed body, closely covered with a yellow felt; just within its point there is a deep purple beard of exceedingly fine compact hairs; on the under side, at a little distance from the point of the lip, is another such beard; and besides these there is, at the end of the lip, a brush consisting of very long, purple threads, so excessively delicate, that the slightest disturbance of the air sets them in motion, when they wave gently to and fro, like a tuft of threads cut from a spider's web; of the last mentioned hairs some are of the same thickness throughout, others terminate in an oblong club, so that when the hairs are waving in the air, and I do not know that they ever are at rest, a part float along gracefully and slowly, while the others are impelled by the weight of their glandular extremities to a more rapid oscillation. Nor is this all; the lip itself, with its yellow felt, its two beards, and its long purple brushes, is articulated with the column by such a very slight joint, that to breathe upon it is sufficient to produce a rocking movement, so conspicuous and protracted that one is really tempted to believe that there must be something of an animal nature infused into this most unplant-like production."

CORRECTION.—The date of the F.C.C. awarded to the Odontoglossum illustrated on page 361 of our last issue should read 1920.

ORCHIDS OF A CENTURY AGO.

IT is always a matter of interest to look back to the early days of Horticulture, when very few Orchids were known, or their cultural requirements understood. A century ago is a long time back for much to be expected. There are comparatively few records to assist the investigator in obtaining an insight into the means employed in collecting the plants and the conditions under which their cultivation was carried on in the primitive glass houses that were heated by brick flues.

Between the years 1823 and 1825 a number of species were received from Trinidad, among them being the well-known Oncidium Papilio, of which Messrs. Loddiges remarked, "We received this very rare plant in 1823, from His Excellency Sir Ralph Woodford, of Trinidad. It has flourished in our stove, planted in soil composed of moss, saw-dust, and coarse sand, but we have not ventured to attempt separating it." Baron de Schack, writing in July, 1823, to Loddiges, described this plant as being called in Trinidad the Vegetable Butterfly, and that it had been known about eight years, and grows on the bark of Calabash trees. It makes two bulbs annually." The peculiar nature of producing a succession of flowers from the same spike was fully recognised at this early date, for the Baron remarked, "When it begins to flower, the same stalk continues to throw out blossoms in succession throughout the year; each flower lasts ten or twelve days, after which, in fourteen days, another comes forth, and so on, till twelve or more flowers, according to the vigour of the plant, have been produced." In 1822 Messrs. Loddiges received Epidendrum fuscatum (anceps) from St. Vincent, and although "it has flowered and produced seeds with us repeatedly, we have seldom been able to detect the blossoms in an open state. It may be cultivated like the other species in a vegetable earth, and may occasionally be separated for increase, constantly preserving it in the stove."

Concerning Æranthes grandiflora, figured in the *Botanical Register*, t. 817, Lindley there remarked that "Roots of this singular plant were sent, in a living state, from St. Mary's, Madagascar, by the late Mr. Forbes, in 1823, to the Horticultural Society, in whose garden our drawing was taken. It is there successfully cultivated in decomposed woody soil, in the same manner as other plants of the same family." Dendrobium fimbriatum was discovered by Dr. Wallich in Nepal, and introduced to England in 1823. The best kind of treatment consisted of planting it in well-drained pots filled with turfy peat cut into small pieces.

George Don, who was collecting for the Horticultural Society, sent home, in 1822, from Sierra Leone, "roots" of Eulophia ensata, described as a tender stove plant, extremely difficult to cultivate, being liable to rot

from various causes. In the same year, Don sent Eulophia gracilis, of which Lindley remarked that it "has been in flower in the garden of this Society at Chiswick for nearly all the summer through." Megaclinium falcatum flowered for the first time "in the stove, where it grows more readily than most of its compatriots, which are usually extremely impatient of cultivation. It should be planted in rich vegetable mould." Another of Don's discoveries, sent to England in 1822, was Bulbophyllum recurvum, figured in the *Botanical Register*, as Tribrachia pendula, where it is remarked that, "like nearly all the epiphytal Orchideous plants of Sierra Leone, this plant is very impatient of culture, we believe it will succeed better in a hot, damp, shady frame, than in any other situation."

A century ago Diuris maculata was sent from New South Wales by Mr. Allan Cunningham. It blossomed in the Royal Gardens of Kew in March, 1825. Microtis media appeared unexpectedly, as the following note from the *Botanical Magazine* explains: "When Capt. King returned from New South Wales in 1823, he brought home with him turfs of the Cephalotus of King George's Sound, at which port he had touched in his passage. From the sod that contained the Australian Pitcher-plant, sprang up unexpectedly our present subject (Microtis media), which produced its flowers in 1825, and thus enabled Mr. Bauer to make a sketch of this rare plant—an inhabitant, with the Cephalotus, of swampy grounds on the immediate shores of King George's Sound, where it was originally discovered by Mr. Brown in 1801. After flowering the plant died altogether at Kew."

Catasetum Claveringii, a variety of C. tridentatum, was brought, in 1822, from Bahia de St. Salvador, in Brazil, to the Horticultural Society by George Don, Lindley describing it as "altogether the most singular Orchideous plant which has yet been seen in a cultivated state." It was named in compliment to Capt. Clavering, the commander of His Majesty's Sloop of war, the Pheasant, in which the Horticultural Society's collector was carried from the coast of Africa to South America. In the autumn of 1823, Catasetum cristatum flowered for the first time in the Society's garden. Pelexia spiranthoides was brought from the island of St. Vincent by Mr. James M'Rae, in 1823, and by him presented to the Horticultural Society. Among other plants received at this period by the same Society was Polystachya puberula.

Concerning a number of species sent by Dr. Roxburgh from India to the Botanic Gardens at Kew, John Smith wrote:—"These I found growing, in 1822, on a shelf above a flue against the back wall, in what was then called a propagating house; the Aërides growing and flowering freely, its roots clinging to the back wall, as also Saccolabium guttatum. There were also plants of Dendrobium Pierardi and D. cucullatum flowering freely, which had recently been brought home from Calcutta by Mr. Pierard."

Many of the Orchids at Kew were then potted in common soil, and the pots plunged to the rim in a tan bed. According to John Smith, *Records of Kew*, "Between the years 1823 and 1825 a considerable number of species were received from Trinidad, forwarded by Mr. David Lockhart, the superintendent of the Garden, amongst which were the first plants of Stanhopea insignis, Oncidium Papilio, Lockhartia elegans, Catasetum tridentatum, Ionopis palliflora, and others, all of which were epiphytal, and many of them being sent growing on portions of branches as cut from the trees, which, being accompanied by instructions from Mr. Lockhart as to how they should be treated, led to the successful cultivation of epiphytal Orchids."

AËRIDES LAWRENCEÆ.

THE inclusion of a handsome specimen of Aërides Lawrenceæ in the group exhibited by H. T. Pitt, Esq., at the recent Autumn Orchid Show recalls the fact that in 1883 a plant put up to public auction was purchased by Sir Trevor Lawrence for the high sum of 235 guineas, which will give some idea of the esteem it then enjoyed.

This species was imported by Messrs. Sanders, from the Philippine Islands, about the year 1882, through their collector, Roebelin, and very soon afterwards by Messrs. Veitch & Sons through their collector, David Burke. Its habitat is in south-east Mindanao, especially around Davao, growing on the trees in light shade, although sometimes in more exposed positions. The variety Southgatei flowered in 1886, and a dried flower of it is in possession of the Editor; it was said to have more colour than the type. The variety Amesianum was described in 1891 as having long racemes, flowers large, orange-yellow, sepal and petals tipped with purple. In the variety Sanderianum, which was originally given specific rank, the sepals and petals are creamy-white, magenta-tipped, the lip large, yellow, magenta, and creamy-white. In 1901 a remarkable specimen in the collection of the Marquis of Salisbury at Hatfield House produced five large spikes of bloom, some of them were branched and the longest measured more than three feet.

A coloured plate of Aërides Lawrenceæ is given in the *Orchid Album*, *vi.* 270, the accompanying text stating that "we regret these Vandaceous Orchids are not seen more frequently in our gardens, but fashion appears to rule, or misrule, in Orchids as well as other things. Many years ago the grand specimens of Aërides that were exhibited at our old shows were admired by all beholders, and such plants may be again produced, if care and strict attention be given to the requirements peculiar to this class of plants." The above was published in 1887, and the great interest taken in the plant exhibited by Mr. H. T. Pitt is a sure sign that this species, as well as other members of the genus, is well worthy of cultivation.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Balmoral	C. Mossiæ × Bc. The King	Sir G. Holford.
Brassocattleya British Queen ...	Bc. Digbyano-Mendelii × C. Ld. Rothschild	Mrs. Gratrix.
Brassocattleya Dr. G. G. Macdonald	Bc. Ilene × C. Peetersii	Flory & Black
Brassocattleya Harry F. Mence ...	Bc. Mrs. J. Leemann × C. Dusseldorfei ...	Sanders.
Brassocattleya Rosette	Bc. Digbyano-Mossiæ × C. Lueddemaniana	Stuart Low
Brassocattleya R. S. Fannin ...	Bc. Digbyano-Trianæ × C. Dowiana ...	Sanders.
Brassolæliocattleya Invicta	Bl. Digbyano purpurata × C. Hardyana	Sanders.
Cattleya Alaska	Lady Veitch × Snow Queen	Sanders.
Cattleya Bletchley Prince	Coronet × Warscewiczii	Sir H. Leon.
Cattleya Chambersiæ	Prince John × Rhoda	Sir H. Leon.
Cattleya Goveri	Warscewiczii × Rhoda	R. G. Thwaites, Esq.
Cattleya Hazel	Brenda × Percivaliana	Sir G. Holford.
Cattleya Octavia	Octave Doin × Fabia	R. G. Thwaites, Esq.
Cattleya Our Prince	aurea × King George	Flory & Black.
Cattleya Peerless	Gaskelliana × Lady Veitch	Sanders.
Cattleya Silver Queen	Percivaliana × Snow Queen	Sir G. Holford.
Cattleya Snowcap	Claesiana × Saturn	Armstrong & Brown.
Cattleya Theodora	Empress Frederick × aurea	R. G. Thwaites, Esq.
Cattleya Veronica	Pittiana × Mossiæ	Sanders.
Cattleya W. Young	aurea × Elaine	Sanders.
Cymbidium Joan	giganteum × Doris	Stuart Low.
Cypripedium Aglaon	Hitchinsiæ × Earl of Tankerville ...	Sanders.
Cypripedium Catherine Hardy ...	Gaston Bultel × Pyramus	Dr. Craven Moore.
Cypripedium Earl of Chester ...	Lord Roberts × Chorltonii	Mrs. Gratrix.
Cypripedium Gwen Dixon	Actaeus × Golden Gem	Leonard Dixon, Esq.
Cypripedium Montcalm	Shogun × Dreadnought	Mrs. Gratrix.
Cypripedium Ophis	Fairrieanum × Germaine Opoix	Cowan.
Cypripedium Pleuron	Arthurianum × Priam	Cowan.
Læliocattleya Adela	Lc. N. Beauclerk × C. Octave Doin ...	Stuart Low.
Læliocattleya Dominic	C. Lueddemaniana × Lc. Dominiana ...	Sir G. Holford.
Læliocattleya Epsilon	C. Empress Frederick × Lc. Dominiana ...	McBean.
Læliocattleya Evadne	C. Maggie Raphael × Lc. Orion	Stuart Low.
Læliocattleya Josette	C. Octave Doin × Lc. St. Gothard ...	M. Chas. Sladden.
Læliocattleya Joyce	C. Mendelii × Lc. Domos	Stuart Low.
Læliocattleya Martinii	Lc. Rubens × Lc. Martinetii	R. G. Thwaites, Esq.
Læliocattleyu Morvyth	Lc. St. Gothard × Lc. Lustre	Sir G. Holford.
Læliocattleya Mrs. C. Chanler ...	L. purpurata × Lc. Lustre	Sir G. Holford.
Læliocattleya Ruby	Lc. Hyeana × C. Empress Frederick ...	Stuart Low.
Læliocattleya Shyla	Lc. Pizarro × C. Octave Doin	Stuart Low.
Læliocattleya Tamar	Lc. St. Gothard × C. Trianæ	Cowan.
Læliocattleya Venada	Lc. Baroness Schrœder × C. aurea ...	H. T. Pitt, Esq.
Odontioda Enid	Oda. Brewii × Oda. Wilckeanum ...	Sanders.
Odontioda Socotra	Oda. Devossiana × Odm. eximium ...	Stuart Low.
Odontoglossum Achilles	Black Prince × eximium	Sanders.
Odontoglossum Bonar Law... ...	nitidum × amabile	Charlesworth.
Odontoglossum Crusader	McNabianum × Aireworth	Stuart Low.
Odontoglossum Enid	Damaris × Artemis	Stuart Low.
Odontoglossum Fairy	Vuylstekeæ × Magali Sander	Sanders.
Odontoglossum Joyce	Olgar × Aireworth	Stuart Low.
Odontoglossum Magnificent ...	majesticum × Magali Sander	Sanders.
Odontoglossum Pericles	McNabianum × Lambeauianum	Stuart Low.
Odontoglossum Re-echo	eximillus × Ashteadense	Pantia Ralli, Esq.
Odontoglossom Zenith	Olympia × percultum	Pantia Ralli, Esq.
Sophrocattleya Pamela	Sc. Doris × C. Trianæ	R. G. Thwaites, Esq.
Sophrolæliocattleya Helia	C. Fabia × Slc. Helen	Sanders.
Sophrolæliocattleya Warnathon ...	C. Warneri × Slc. Marathon	P. Smith, Esq.
Vuylstekeara Robertsonii	M. Bleuana × Oda. Zenobia	Charlesworth.

ORCHIDS AT BRISTOL.

THE Fifty-Second Annual Chrysanthemum Show was held at Bristol on November 15th and 16th, and, as usual, Orchids were well represented. Apart from the non-competitive groups staged by Messrs. Cypher, Messrs. Keeling, and Messrs. Sanders, no large exhibits were present, but keen competition was shown in the smaller entries.

In the class for a group of Orchids, 6ft. by 4ft., W. Melville Wills, Esq., was first with a collection of well-grown plants, in which specimens of Cypripedium insigne Sanderæ predominated, interspersed with Cattleya and Odontoglossum hybrids, Epidendrum vitellinum, and a well-flowered plant of Dendrochilum Cobbianum. Colonel Cary-Batten obtained the second prize with a group rich in variety, particularly conspicuous were Cypripediums Maudiæ, Gaston Bultel, Memnon, nitens, insigne Sanderæ, Charlesworthii, and Leeanum, as well as varieties of Dendrobium Phalænopsis Schrœderianum, Epidendrum vitellinum, Odontoglossum grande, etc. The third prize was awarded to Sir Wm. Howell Davies, his group consisting chiefly of Cypripediums in variety, Dendrobium Phalænopsis Schrœderianum, and Cattleya labiata.

In the class for three Orchids in bloom, Col. Cary-Batten staged Cypripedium Gaston Bultel, Læliocattleya Carmencita, and Dendrobium Phalænopsis Schrœderianum, all three well-grown plants. Sir Wm. Howell Davies was second with three-flowered Cypripediums, two being insigne Sanderæ, and one Harrisianum.

For two Orchids, W. Melville Wills, Esq., was easily first with a specimen plant of Cypripedium insigne Sanderæ carrying eight flowers, and a fine variety of Cypripedium Leeanum. G. A. Wills, Esq., carried the second prize with Cattleya Fabia and Læliocattleya J. J. Ansaldo. Mrs. A. Dalton gained the third prize with Cymbidium Tracyanum, a fine plant with two good spikes of dark flowers, the second plant being Cypripedium insigne Sanderæ with six flowers, but, unfortunately, not fully opened. A fourth exhibit, by J. Scott, Esq., consisted of a fine form of Cymbidium giganteum with two spikes, and Cattleya Bowringiana.

In the class for single specimen Orchids, Mrs. Dalton was first with Cymbidium Tracyanum, carrying four spikes of highly fragrant flowers. As specimen plants, Cymbidiums excel, and the second prize went to J. Scott, Esq., for C. giganteum with three spikes. In the single specimen Cypripedium class, the third prize was gained by W. J. Wilkins, Esq., with a well-flowered example of Cypripedium Arthurianum; the second prize was won by Sir Wm. Howell Davies, for a fine plant of Cypripedium insigne Harefield Hall with five flowers; and the first prize went to Mrs. A. Dalton for a still better example of the same Orchid.

In the class for three distinct Cypripediums, W. Melville Wills, Esq., was first with a fine variety of Cypripedium Leeanum, Cypripedium insigne Harefield Hall, and Cypripedium insigne Sanderæ, all most creditably grown, the latter with nine flowers. Col. Cary-Batten came second with Cypripedium Rossettii bearing a single magnificent bloom, Cypripedium Gaston Bultel, and a variety of Cypripedium Memnon. Sir Wm. Howell was third with Cypripedium Fusilier, Cypripedium insigne Sanderæ, and a form of Cypripedium Memnon. For three Cattleyas, Col. Cary-Batten was first with C. Bowringiana and two distinct varieties of C. labiata. A third prize was awarded to J. Morton Evans, Esq., M.D., for duplicates of the first prize plants, but not as good in quality.

For three Oncidiums, W. J. Wilkins, Esq., was the only exhibitor, and took first prize with two O. varicosum, and O. prætextum, now seldom seen. In the class for three Orchids in bloom, J. Brown, Esq., gained first with Cypripedium gigas, Cypripedium Troilus, and a well-flowered Odontioda Bradshawiæ. The second prize went to W. J. Wilkins, Esq., with Odontioda Sanderæ, Cypripedium Maudiæ, and a very distinct and pretty form of Dendrobium Phalænopsis Schrœderianum. The third prize went to J. Morton Evans, Esq., who staged two Cattleya labiata, and a Læliocattleya, probably a form of elegans.

There were only two entries in the class for six Cypripediums, W. J. Wilkins, Esq., gaining the premier award with a highly coloured form of Naida, a fine variety of Antinous, a well marked form of nitens, Lucifer, with two well balanced flowers, and a nicely flowered variety of Actæus. J. Morton Evans, Esq., came a close second with Cypripedium Cyclops, Royal Gem, a highly coloured variety, Kitty, Harrisianum superbum, nitens, and Germaine Opoix. For a specimen Orchid, W. J. Wilkins, Esq., was first with Cypripedium Arthurianum bearing eleven flowers, and J. Morton Evans with Cattleya labiata.

In the class for six Orchids, any variety, W. J. Wilkins, Esq., was first with Vanda cœrulea, Cattleya Bowringiana, Cypripedium insigne Harefield Hall, Oncidium varicosum, with three good spikes, Cattleya Portia, and Cypripedium Hitchinsiæ. J. Morton Evans, Esq., was second with Vanda cœrulea, Cattleya labiata, Cypripedium Arthurianum, Cypripedium Hitchinsiæ, Cypripedium Oenanthum, and Cypripedium Ashburtoniæ.

In the non-competitive group, Messrs. Cypher & Sons staged a bank of Orchids backed by crotons and palms. Prominent in it were a fine specimen of Læliocattleya Britannia alba, Brassocattleya speciosa, Blc. Winston, Lc. spectabilis, Cattleya Portia var. The King, and a number of good Cypripediums. On the same side of the Hall, Messrs. Keeling & Sons staged an effective group, including Vanda cœrulea, Odontoglossum eximium, and Od. Smithii (Rossii rubescens × crispo-Harryanum), a very

pretty and brightly coloured form. At the end of the Hall, Messrs. Sanders staged a very effective group, rich in variety, both of species and hybrids. Noticeable were Vanda cœrulea, Cattleya labiata in variety, Oncidium bicallosum, Lc. Britannia, and Cattleya Fabia, from the white sepalled and petalled form to a very dark variety. Also Cypripediums Fairrieanum, insigne Sanderæ, elatior var. Golden Fleece, The Baron, and a specimen plant of Dreadnought. Brassocattleyas included Mrs. J. Leemann and Everest, while other Orchids were Cirrhopetalum Rothschildianum, Lc. Schrœderæ, a fine variety, and Goodyera Dawsonianus. Each of the three trade exhibits was awarded a Gold Medal. E.C.

AN AMATEUR'S EXPERIENCE.

BY JOSEPHINE R. WALKER.

THE Lælias have lived up to our hopes, especially the L. Gouldiana, one plant, carrying two spikes, with a total of nine beautifully formed and coloured blooms, has been a joy to look on. We have had quite a lot of sunshine, and they seem to grow with its help. All the other spikes have had three blooms. I had hopes of six flowers on the big plant, but they did not all develope, my husband said they never did. This plant has another leading bulb nearly as good as either of the flowering ones, so we are hoping for three spikes next year. It is a lovely plant and has been grown in the full sun on a shelf close to the glass. The flowers of L. anceps seem very poor in comparison, so far as colour and texture are concerned. We have nine plants of L. Gouldiana, and, like other members of the genus, the back bulbs break forth into new growth splendidly, probably because we put them into the "Monkey House" to start with. A small mistake occurred in my notes of last month: the Cymbidium Sanderi was in a Lælia pot, but not with a Lælia. We do experiment, but not quite so badly as that. My editor must forgive this.

Our friend, whose Orchids we take so much interest in, has shaped-up wonderfully; every pot and plant is spotless, as is everything about them. They are a fine lot and very beautiful varieties. We assisted in re-potting them all during the week end, everything was ready for the process, and all "hands" worked. This amateur has since been staying with us, and gave us great encouragement by asking what had become of the wee seedlings on the central staging; they had been re-potted and had grown so well in six months that she did not know them, the majority of the leaves being as large again. She was delighted with the Cymbidium Tracyanum, which was in flower, also with a number of big Cypripediums, the flowers of these come up smiling every year; one carried all double flowered spikes last year, but this time eight single examples.

For the ordinary people who want flowers in their houses, one big well-flowered Cypripedium is worth any number of bits. Those with a wide white margin to the dorsal sepal are best for producing a bright effect. We have a treasured piece of Cypripedium Boltonii, which is making three new growths, but it will be a year or two before we allow it to flower.

Our Dendrobiums have been hung in the full sunlight and air for the last two months. They are promising well at the nodes, in some cases the full length of the bulbs. Some of them have been returned to the "Monkey House" to flower, which is full up. When our previous efforts at Dendrobium culture are remembered one realizes what woolly brains we must have had. A few weeks ago we got a dozen Masdevallias from a friend. They were in a sad condition, having been bone-dry for a considerable time, which is the last kind of treatment they require. We have, however, learned to go steadily with watering newly acquired plants until they get used to our conditions. They must have been wonderful specimens at one time, and are all good varieties, so we will enjoy their weird and wonderful flowers. We have put them on a shelf above the Odontoglossums, where the Odontiodas were, the latter having been moved a little nearer the heat for the winter.

One does not like to talk about Odontoglossums being grown in the same house as Cattleyas and Dendrobiums till a year or so has passed, but an expert has given his judgment on their condition and described them as having "bulky growths." Certainly many of them are throwing good spikes. The Vandas in the cradle in the roof have been a failure so far as flowers are concerned, those in pots succeeding much better than those on blocks. Neither have been a real success. They have rooted and grown splendidly, so next year we will follow the advice of Mr. Mackay, who appears to have cultivated them very well, which is more than most people can say. Apparently they are a difficult subject to deal with at any time.

BIFRENARIA HARRISONIÆ.—Messrs. Veitch, in their Orchid Manual, state that the botanical and horticultural history of those Orchids that have been longest in cultivation is often most obscure, because in the early days of Orchid culture very little care was taken to ascertain or to record the dates of introduction. Bifrenaria Harrisoniæ is an instance of this. All that is recorded respecting its origin is that it was sent by Mr. Wm. Harrison, a British merchant resident in Rio de Janeiro, to his brother Richard at Liverpool, and that on flowering it was named by Sir Wm. Hooker in compliment to another member of the family, Mrs. Arnold Harrison, the possessor of one of the finest collections of Orchids at that time. The probable date of introduction is thence 1821-22.

THE AMATEUR'S PAGE.

SO far as the English climate is concerned, the month of January marks the coldest period of the year, the days are at their shortest, while the plants are in their minimum state of activity. With such adverse conditions as generally prevail, it is no use attempting to force plants along by excessive heat and an overabundant supply of water. Fire heat will, of course, be necessary, and in the hot-houses a greater amount of damping-down will be required. This should be done with care, for it will oftentimes be noticed that the ground nearest the boiler end of the house dries up much quicker than the end farthest from it. In order to produce a circulation of water in the pipes a gradual rise is given them, so that at their farthest point from the boiler they are generally nearer the staging than the ground. It is thus plain that while at one end of the house it is the ground that will require much damping down, at the other end it is likely to be the under-staging that will need most water.

With every increase of temperature more moisture is absorbed by the atmosphere, consequently it is the early part of the day when damping should be done, and the more so when there is a prospect of bright sunshine adding a few extra degrees to the temperature. With the decline of day-light the temperature gradually falls and causes the atmosphere to give up some of its moisture, this being precipitated in the form of dew. On this account it is not wise to damp down the house after mid-day in winter time. But when much firing is being used it may be necessary to again damp down just a limited area near the boiler, for the surrounding soil should not be allowed to become dust dry. Nothing is more detrimental than a compost saturated with water when the temperature is low. It would indeed be better for the plant to be really in need of water during a spell of exceptionally cold weather than for it to be surrounded by unreasonably wet conditions.

Every opportunity should be taken of keeping the plants in a robust state of health by judicious ventilation. The bottom ventilators of all houses are of considerable assistance in preventing the atmosphere from becoming stagnant, and with the cool-growing section of plants they will rarely need to be entirely closed. There is, however, a difference of opinion regarding the use of top ventilators, for while some cultivators endeavour to have them slightly open at all times, there are others who keep them entirely closed. But this does not represent so much a difference in treatment as it does of outside conditions. Naturally, the amateur situated in or near a large town does not wish the smoke and foggy atmosphere to enter his houses, and he is almost forced to keep the ventilators closed during such dull days. Growers who advocate ample ventilation include

those who are much more favourably placed, and in the clean country air there is oftentimes bright sunshine in the winter that greatly assists in maintaining the necessary temperatures.

We are now entering the coldest period of the year, and with many amateurs it is a time of anxiety. When very cold nights are expected it is always a good plan to protect the outside of the houses with blinds or large mats. Roller blinds come in very useful for this purpose and assist in keeping off keen winds. When raised some distance from the glass it is advisable to securely fasten them when left for the night, or a rough wind may do considerable damage. Lath blinds that can be placed directly on the glass are less liable to be blown off during a stormy night, and if they can be rolled up by hand there will be no need for cords that so often get frozen hard and unworkable. With some of the old-fashioned houses there are glass sides which may be covered with mats during any prolonged spell of very severe weather. This will prevent much waste of heat, and, consequently, not only will a saving in the fuel bill be effected, but as the pipes will not need to be quite so hot there will be less chance of the inside atmosphere being made injuriously dry.

ROYAL HORTICULTURAL SOCIETY.

November 28th, 1922.

MEMBERS of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Prince Tadashige Shimadzu, Messrs. Jas. O'Brien (hon. sec.), F. J. Hanbury, H. T. Pitt, J. Cypher, S. W. Flory, C. Lucas, R. Brooman-White, Pantia Ralli, J. E. Shill, T. Armstrong, A. McBean, J. T. Barker, Gurney Wilson, C. H. Curtis, A. Dye, J. Wilson Potter, and W. J. Kaye.

FIRST-CLASS CERTIFICATE.

Odontoglossum Armstrongii var. Aureola; from Messrs. Armstrong & Brown. One of the most remarkable of present day hybrids and representing a great advance in the yellow section of Odontoglossums. In size and formation, the single flower closely resembled Od. eximium, but in colour the segments were nearly covered with solid blotches of pure chrome yellow, the tips being white, and with a narrow white margin on the edge of the petals. Apex of labellum apiculate, and crest spiny. A Certificate of Appreciation was also awarded in recognition of this meritorious cross.

AWARDS OF MERIT.

Odontoglossum eximillus var. Tintoretto; from J. J. Bolton, Esq. Claygate, Surrey (gr. Mr. S. Lyne). The spike carried six flowers of excellent formation, all the segments being of blood-red colour, with the exception of a very narrow white line round their margin.

Odontoglossum Magnificent (majesticum × Magali Sander): from Messrs. Sanders. A very pretty result in which the spike carried eight medium-sized flowers with reddish-chocolate markings, the lip having a broad white apex.

Cypripedium Godefroyæ splendens; from Messrs. Sanders. A handsome and distinct variety, the large flowers being of thick texture, porcelain white, the sepals and petals effectively marked with purplish-maroon.

CULTURAL COMMENDATION.

Mr. J. E. Shill, Orchid grower to Baron Bruno Schröder, for a magnificent specimen of Læliocattleya Schœderæ, the thirteen bulbs all leaved, the two spikes bearing a total of nine large flowers, sepals and petals cream-white, the lip intense purple, with a yellow throat.

Messrs. Stuart Low & Co. were awarded a Silver-gilt Flora Medal for an extensive exhibit containing many interesting species, among them being six well-flowered plants of Vanda cœrulea, Dendrobium Phalænopsis, and its variety album, with snow-white flowers, Cattleya labiata Amesiana, white, the lip stained with light rose-pink, Cœlogyne Veitchii, with a many flowered pendulous spike, Oncidium Lanceanum, now scarce, On. Marshalianum, with golden-yellow flowers, and the pretty Epidendrum xanthinum. In the centre was a fine example of Læliocattleya General Maude, accompanied by Lc. luminosa aurea and Lc. Decia alba.

Messrs. Sanders received a Silver Flora Medal for an interesting exhibit in which the new Odontioda Fairy and Cypripedium Aglaon were noticed. Other Cypripediums were a fine variety of Godefroyæ, Jewel, and the much admired Fairrieanum. Vanda Watsonii carried several spikes of white flowers, Stelis micrantha had as many as twenty-three spikes, and Acampe papillosa bore several flowers with light brownish markings. Læliocattleya Enchantment and Odontoglossum crispum Lausanne were in fine form.

Messrs. Cowan & Co. received a Silver Banksian Medal for a well arranged group of Cypripediums, among the best being Overtonii, Joyce Hanmer, Dreadnought, with three finely developed flowers, Pallas Athene, Delhi, with four large flowers, and King Albert, an excellent example, the broad, flat dorsal being especially well developed. In the centre was Brassocattleya British Queen, of bright rose-pink colour, and a pleasing specimen of Od. crispum xanthotes.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey, received a Silver Banksian Medal for a group of rare species. In the middle was the singular Bulbophyllnm lemniscatoides and a fine example of Dendrobium Cœlogyne with five dark flowers. Others were Lælia Lindleyana, the curious Masdevallia Mooreana, Cœlogyne speciosa alba, Bulbophyllums Careyanum and cupreum, both well flowered, and Cœlogyne miniata, with seven spikes of coral-red flowers. All the plants were in a fine state of cultivation.

H. T. Pitt, Esq., Stamford Hill, exhibited Cypripedium Brigadier General (Pyramus × Duke of Marlborough), a bold flower with a showy dorsal sepal and handsome mahogany coloured petals. Also Cyp. The Claimant (Marcus × Alcibiades), with the pretty dorsal sepal of orbicular formation, and covered with small purplish spots on a white ground.

R. Windsor Rickards, Esq., Usk Priory, Mon., exhibited Cypripedium Draco, Usk Priory variety, bearing two handsome flowers with bold dark chocolate spotting, the upper part of the dorsal being white. Also Cyp. Chrysotens, Usk Priory variety, in which the plant bore three large flowers of excellent shape, the orbicular dorsal sepal having an apple-green base and marked with blackish lines and spots.

Messrs. Cypher & Sons staged a selection of the best Cypripediums, among them being Nydia, Actæus Bianca, fine varieties of Priam, Goliath, very well developed, and Cyclops. The bright yellow C. insigne Sanderæ is always attractive and excellent examples were included.

Messrs. Flory & Black exhibited Brassocattleya Rosita (Bc. Ilene × C. Dowiana) with three large flowers, very prettily tinted with rose mottling and with gold lines in the expansive labellum.

Messrs. Armstrong & Brown staged Odontoglossum Nora, with a many flowered branching spike, and Cypripedium Pacavia, a large flower, the dorsal sepal having a greenish base, and with large purplish-brown spots on the upper portion.

December 12th, 1922.

Members of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Prince Tadashige Shimadzu, Messrs. Jas. O'Brien (hon. sec.), G. F. Moore, C. J. Lucas, R. Brooman-White, H. G. Alexander, W. H. White, H. T. Pitt, J. Cypher, J. E. Shill, Fred. K. Sander, Gurney Wilson, C. H. Curtis, Pantia Ralli, S. W. Flory, T. Armstrong, E. R. Ashton, J. Wilson Potter and Fred. J. Hanbury.

FIRST-CLASS CERTIFICATES.

Vuylstekeara Aspasia (Odontioda Charlesworthii × Miltonia Charlesworthii), from Messrs. Charlesworth & Co. Another remarkable hybrid comprising the three genera Cochlioda, Miltonia and Odontoglossum. The young plant carried a single flower in which the sepals and petals were reddish-rose, and the expansive Miltonia-like labellum rose-coloured with reddish freckling.

Odontoglossum Vega (King Arthur × Midnight), from Messrs. J. & A. McBean. The spike of this attractive hybrid carried five large flowers, all the segments of solid crimson-red and with a very narrow white border.

AWARDS OF MERIT.

Cypripedium Etta (Mrs. Rickards × Chardwar), from R. Windsor

Rickards, Esq., Usk Priory, Mon. A handsome hybrid of excellent formation, the dorsal sepal having numerous large, confluent blotches of rich crimson-purple, and the petals well developed and coloured.

Cypripedium Golden Fleece (insigne Sanderæ × Antinous), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt. A beautiful result, the large flowers of clear primrose-yellow colour, the dorsal sepal white on the upper portion and with a few minute spots on the lower area.

Cypripedium J. M. Black (Beryl × Eurybiades), from Messrs. Flory & Black. This elegant flower has the broad dorsal margined with white, the central area greenish and marked with large purplish spots, the wide petals are yellow stained with brown.

Odontioda Royal Scot (Od. King Arthur × Oda. Coronation), from Messrs. J. & A. McBean. The spike carried six large flowers, the segments having the central area purplish-crimson, and the margin white, making a strong contrast.

Sophrolæliocattleya Lustre (S. grandiflora × Lc. Sandhage), from Messrs. Charlesworth. Although the single flower carried by this seedling was of medium size, its broad segments were rich ruby-crimson.

CULTURAL COMMENDATION.

To Messrs. J. & A. McBean for a grand example of Odontoglossum Crosius (Solon × Maillardianum), carrying three tall spikes with an aggregate of thirty-six flowers.

GROUPS.

A Gold Medal was awarded to G. F. Moore, Esq., Bourton-on-the-water, Glos. (gr. Mr. Page), for a wonderful exhibit of Cypripediums, a Certificate of Appreciation being also awarded in recognition of the great advance which had been produced in the size of the flowers. Several of the blooms measured between five and six inches across, and had been derived from a very fine variety of Cyp. Christopher raised previously by Mr. G. F. Moore. Cyp. Chrysostom was represented by two superb varieties distinguished respectively as G. F. Moore and Amy Moore, and Cyp. Gwen Hanmer carried an immense dorsal sepal, orbicular in shape, white, with an apple-green base. Cyp. Bourton Lady, and Cyp. Doris Stanton, were also remarkably fine. On each side of the group were specimen plants of Cyp. Arthurianum aureum, carrying six flowers; Cyp. Memoria F. M. Ogilvie, with the dorsal suffused with purple, and Cyp. Lily Kennard, yellowish with mahogany-tinted petals.

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood) received a Silver Flora Medal for a fine exhibit containing Dendrobium Curtisii, with a profusion of white flowers, the bright yellow Oncidium bicallosum, Eulophiella Rolfei, with a fine spike of flowers, Odontonia Corona, with a many-flowered spike, the handsome Læliocattleya majestica, bearing a spike

of four large richly-coloured flowers, the rare Epidendrum Laucheanum, several fine Sophronitis hybrids, and in the centre Odontoglossum crispo-Solon, Pitt's variety, a magnificent hybrid with very large flowers having purple blotching on a whitish ground.

Messrs. Charlesworth & Co. were awarded a Silver Flora Medal for an extensive exhibit containing the pretty Odontioda Stephensonii, several very fine Odontoglossum hybrids, the elegant Vuylstekeara Jos. Charlesworth Habenaria rhodocheila, always attractive at this time of the year, Odontonia Langowoyi, the pretty Epidendrum ciliare, a selection of late autumn flowering Cattleyas and the interesting Odontonia Merope.

Messrs. J. & A. McBean secured a Silver Flora Medal for a group of select Orchids, noteworthy plants being Odontonia brugensis, a pretty variety of Odontoglossum scintillans, several fine forms of Od. crispum, choice Cattleyas and Læliocattleyas, as well as several heavily blotched Odontoglossum hybrids, including Od. Vega and Od. Crosius with three many-flowered spikes.

Messrs Sanders were awarded a Silver Flora Medal for a pleasing exhibit containing the elegant Brassocattleya Mrs J. Leemann, the new Cymbidium Milo (J. Davis × Tracyanum), the uncommon Cœlogyne assamica, and Angræcum mirabile, with a spike of ten milky-white flowers having a reddish column. The Cypripediums included Emerald (Curtisii Sanderæ × Maudiæ), Golden Morn, and Our Prince.

Messrs. Cowan & Co. secured a Silver Flora Medal for an attractive group in which were the following fine Cypripediums; Goliath, Dora, Delhi and Nigger. In the centre were brightly coloured varieties of Læliocattleya Dodona, Lc. luminosa aurea and Cattleya Douai, a fine white hybrid. An interesting plant was Odontoglossum Duvivierianum, a natural hybrid between maculatum and nebulosum.

Messrs. Flory & Black exhibited half-a-dozen select varieties of Cypripedium Oriens, including two distinguished as Alpha and punctatissimum. It appears to be a promising hybrid.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt, exhibited Cypripedium Ballet Girl, a very distinct hybrid in which the large white dorsal and ventral sepals are nearly equal in size. Also Slc. Nada (C. fulvescens × Slc. Marathon) with a spike of five flowers of rosy-flesh colour, the labellum marked with reddish-rose.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), exhibited Odontoglossum eximium var. Arghiro, with a spike of five handsome flowers, the segments almost covered with reddish-crimson blotches.

Mons. Henri Graire, Amiens, sent Odontocidium Graireanum (Od. Thompsonianum × On. macranthum) an attractive hybrid with a graceful spike of dark reddish flowers.

MANCHESTER ORCHID SOCIETY.

November 2nd, 1922.

MEMBERS of the Committee present :—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, W. M. Jackson, D. McLeod, F. K. Sander, E. W. Thompson, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Pharo, a splendid flower of the Doin type; Od. crispum Snowdrift, one of the finest forms of the virginale section; Od. St. George var. solum, a large flower curiously marked on the segments; Cyp. Cavalier var. West Point, a fine form with the dorsal sepal well spotted; and Cyp. Mad. Fevrier var. Mastiff, a very large flower of the Germain Opoix type. From S. Gratrix, Esq.

Cyp. Earl of Chester, large flower, brilliantly coloured, almost solid red; Cyp. West Point solum (Bianca × insigne Sanderæ), a very fine flower of the Bianca type; Od. crispum West Point Triumph, a handsome flower, heavily blotched with plum purple; Odontioda Colinge var. Gratrixiæ, flower very bright, with peacock eyes on each petal. From Mrs. Gratrix.

Brassolæliocattleya Truffautiana var. Distinction, a fine flower of the Dowiana Rosita type of colouring; Lælia præstans var Queen Alexandra, a chaste variety, faint flush of colour through sepals and petals, lip slate blue; Oda. Ganesa var. Haddon House, large flower, very dark purple-red colour and rose tinted margin; Od. crispum Zeno, magnificent flower of perfect shape and great substance. From P. Smith, Esq.

Cattleya Alcimeda var. Fair Lady, large handsome flower of good substance and even colour; Læliocattleya Rossendale, very richly coloured flower, dark lip, and throat golden lined. From R. Ashworth, Esq.

Dendrobium Phalænopsis album, Beckton's var., flower large and of fine shape, the best of its type. From B. J. Beckton, Esq.

AWARDS OF MERIT.

Læliocattleya var. Sunbeam; Cattleya Anette var. West Point. From S. Gratrix, Esq.

Brassocattleya Ashworthii (Bc. Dietrichiana × C. Fabia). From R. Ashworth, Esq.

Cypripedium Chrysostum var. Conyngham (Hera Mostyn × Christopher). From Dr. Craven Moore.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Cattleya Portia, C. labiata, and Lycaste Suzanne.
Mr. F. Cookson, for Pleione lagenaria.

GROUPS.

Gold Medal, S. Gratrix, Esq.; Silver Medal, A. T. Cussons, Esq.; Large Silver Medal, Messrs. Cypher & Sons.

November 16th, 1922.

Members of the Committee preesnt:—A. T. Cussons (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. C. Ellwood, J. Evans, W. Giles, J. Howes, J. Jackson, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Beta, a fine blotched variety, very deep in colour; Od. Challenger, flower of perfect shape, broad sepals and petals heavily blotched reddish-brown; Cyp. Cavalier var. Perfection, a bold flower, lower part of the broad dorsal sepal heavily marked rose-pink, broad white margin; Cyp. Linda, fine flower, broad white dorsal sepal, green base; Cyp. Godfroyæ var. West Point. From S. Gratrix, Esq.

Od. eximium Agincourt, large and beautifully blotched, Od. Dorothea rubrum (Doris × crispum), large flower, rich reddish-brown with rose margin; Oda. Beryl var. Haddon House, a most distinct variety, one of the best of the Wilsonii crosses; Od. Elvasea, large richly-coloured flower. From P. Smith, Esq.

Odontioda Lerna var. Joyce Hanmar, a fine variety of rich chestnut-red colour, with narrow white margin; Od. Jaspar var. Edgemoor, one of the finest forms of the Jasper section. From A. Hanmer, Esq.

Cyp. Olympus var. Ariel, a fine flower having an exceptionally large dorsal sepal with green base. From Mrs. Gratrix.

Lycaste cruenta, Beckton's var., very large flower. From B. J. Beckton, Esq.

AWARDS OF MERIT.

Cattleya Weedonaurea; Llc. King Emperor var. West Point; Blc. The Baroness var. West Point; Od. crispum var. West Point Radiance; Cyp. Alcibiades westpointense. From S. Gratrix, Esq.

Cyp. Montcalm (Shogun × Dreadnought). From Mrs. Gratrix.

Cyp. Christopher var. St. Andre. From B. J. Beckton, Esq.

AWARD OF APPRECIATION, FIRST-CLASS.

Cyp. Medina var La Donna. From Mrs. Bruce and Miss Wrigley.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Odontoglossums; Mr. W. A. Stewart, for Lycaste cruenta, Beckton's variety.

GROUPS.

Gold Medal, S. Gratrix, Esq.; Silver Medals, Mrs. Bruce and Miss Wrigley, A. Hanmer, Esq., and Mr. D. McLeod.

THE ORCHID REVIEW.

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NOTES.

NATIVE ORCHIDS OF CANADA.—I am particularly interested in our wild native Orchids, of which I have found 35 different kinds within a few miles of my house, this probably being a record, not only for Canada, but for the United States as well. I was glad to see the notes in the November issue, p. 322, concerning Epipactis latifolia and British Orchids, also on the extraordinary plants of Cypripedium pubescens and C. acaule album described on p. 334.—H. Mousley, Hatley, Que., Canada.

ORCHID CULTIVATION IN NEW ZEALAND.—From a letter recently received from Mr. Alfred R. Ragg, of Linwood, Christchurch, New Zealand, we learn that the cultivation of Orchids in his locality is rendered difficult on account of the extreme temperatures experienced. During several days in October last a shade temperature of 80 degrees occurred, while at night time about five degrees of frost were registered. The Horticultural Society, of which Mr. Ragg has been chairman during the last twenty years, consists of about 500 members.

INCLUSION OF LEAVES IN POTTING COMPOST.—I think a word of warning is necessary regarding the use of leaves when potting large plants. With small seedlings I have always found the inclusion of a few chopped leaves useful in encouraging rapid growth, and this led me to experiment by using much larger quantities with fully-grown plants. The results have been very unsatisfactory, for owing to the fact that large plants usually go a full year, sometimes longer, without being repotted, the leaves decay in the course of a few months and cause the compost to become much too soft, so much so that in many cases I have had to entirely repot specimens at a time just before their flowering season. This has thrown them back a full year, and I question whether they will fully recover during the next season. I am still of opinion that a few leaves are useful, but my trouble has undoubtedly been brought about by using too large a quantity, and I wish to warn others of the probable results.—R.S.T.

DR. COTTLE'S EXPEDITION.—Anyone who takes on the work of Orchid collecting in the little-known lands is fully aware of the dangers involved, both as regards disease and the likelihood of being attacked by wild animals. It is only a few months ago that Dr. Cottle set out to collect Orchids for Sir Jeremiah Colman, Bart., and now we hear that the first consignment has arrived. On his outward journey in the "Malaya," Dr. Cottle called at Paramaribo, and stayed for some time in Dutch Guiana. He there made a motor-boat trip of 120 miles up the Saramacca River, and subsequently explored many creeks by means of canoes. Among the Orchids collected are numerous species of the following genera:—Aspasia, Brassia, Epidendrum, Stanhopea, Stelis, Gongora, Ornithidium, Ornithocephalus, Zygopetalum, Maxillaria, Polystachya, Rodrigeuzia, and Ionopsis. It is to be hoped that further consignments will be received, for many of the best kinds from the above locality are now rarely seen in cultivation. Dr. Cottle experienced much difficulty in searching the Guiana swamps, while insect pests were ever present.

AN OLD-TIME ORCHID COMPOST.—About the year 1845, Mr. Appleby wrote: "I have lately used the following compost with great success for Orchidaceous plants. I procure a quantity of sphagnum, or common bog moss, have it dried, and then chopped small; to this I add half-rotten willow or poplar wood. I prefer these woods on account of their great lightness and the absence of resin, chopped into small pieces of various sizes, the largest not bigger than pigeon's eggs. To these I add the under stratum of sphagnum, which has become almost peat, likewise chopped fine, the whole in about equal parts. These make altogether a light open compost, which appears admirably to suit the plants, as they root in it freely, and thrive to my satisfaction. I use it for the species that grow upon trees."

VANDA AMESIANA.—This attractive species was originally introduced by Messrs. Low & Co. from the Southern Shan States, where it grows mostly on rocks in warm situations fully exposed to the sun, but sometimes on trees in partial shade. Its usual season of flowering is during the cold period of December and January, when in the early morning the ground is occasionally white with hoar frost. It is very successfully cultivated by Mr. Geo. Taylor in the Bulstrode collection at Gerrard's Cross, Bucks, and from him we have received photographs showing a group of plants in full flower and a single specimen carrying five branched spikes. These plants are abundantly supplied with thick white roots, and were grown in a span-roofed pit, with plenty of heat and moisture during the growing season. When the roots have discontinued their season's growth less water is given, and later on only enough to prevent the plants from shrivelling.

CYMBIDIUM CULTURE IN AUSTRALIA.

By ARTHUR YATES, Sydney.

CYMBIDIUMS grow so freely in the open air in Sydney that I think a few notes on the cultural methods employed would be of interest. I have specimen plants of C. Lowianum and C. eburneo-Lowianum, which measure six feet across; the former has at present twenty-four spikes with over 300 flowers, the latter has thirty spikes with about 200 blooms. They are so large that it is difficult to move them any distance. They are grown

CYMBIDIUMS FLOWERING IN THE GARDEN OF ARTHUR YATES, ESQ.

on the lawn, where they get the full mid-day sun, and only during the hottest months do they receive a slight protection on bright days with thin cotton shading; without this the leaves become scorched and the plants unsightly. When grown in the open they will, however, stand a great amount of sun without injury.

I have also several large plants of these varieties growing in 15in. pots. These are also grown in the open air, but in a rather more shady position. When the growths are completed in the autumn they are moved to a sunny situation; this ripens the growths and forces them into bloom. Each plant averages six to eight spikes. C. Tracyanum and C. Winnianum also do

equally well under this treatment, but flower much earlier. All the plants that are grown in pots are brought into the glass-house to bloom, they then open with much purer colours and the flowers last longer. I also think they are larger. The specimen plants in tubs mentioned above are brought on to the verandah to flower, they are thus protected to a large extent from sun, wind and rain. Under these conditions I have had them in bloom from two to three months.

These Cymbidiums are regularly watered with the hose every two or three days during the hot season. At times the temperature runs up to 95 and 100 degrees, and in the winter we have occasional sharp frosts, but neither extremes make the slightest difference to them, indeed, under the climatic conditions prevailing here they are one of the hardiest of garden plants. No disease nor insect pest attacks them, not even red spider; my only trouble is that the very large plants harbour the shell-back snails, which attack the young flower spikes, but the foliage is never damaged.

I have also two large clumps growing on tree stumps in the open. These old tree stems are covered with Elk's-horn ferns (Platycerium alicorne); on the top the Cymbidiums Lowianum and eburneo-Lowianum are growing along with our native Rock Lily (Dendrobium speciosum). The combination is charming, as they bloom at the same time. When grown under these conditions I have had a spike of C. Lowianum with thirty-three blooms. I notice, however, that they thrive best on the shady side. These clumps are not protected in any way.

I have recently imported a number of the rarer and newer Cymbidiums; being small pieces I have them growing in a bush or shade house; most of them have two or three leads and are making good growths. My opinion is that Cymbidiums, at any rate in Sydney, very much dislike being coddled. When I first commenced growing Orchids twenty years ago, I had the Cymbidiums under glass; they made fair growths, but did not bloom satisfactorily till I placed them in the open air. Since then they have flowered regularly each year and have continually increased in size.

Further north, in Queensland, most of the Dendrobiums, Cattleyas, Lælias, Cypripediums and the like, thrive in the bush or shade house, but the Cymbidiums are the only class that have been a marked success with me in Sydney when grown under similar conditions. Dry weather, violent changes of temperature, and occasional scorching winds have no ill effect on them so long as the roots are kept reasonably moist.

EPIDENDRUM COCHLEATUM.—This was one of the few epiphytal Orchids known to Linnæus, and the first on record to flower in England, the date being 1787. The specific name refers to the fancied resemblance of the lip to the shell of some species of snail.

FOUR ONCIDIUMS.

By JULIA A. STUCKEY, Unley Park, S. Australia.

AN interesting study in the vitality and recuperative power of Orchids is provided by four Oncidiums which arrived here on August 21st, 1922, after two long voyages without any kind of cultivation or special treatment. Natives of the Organ Mountains, Brazil, they were part of an importation received in Yorkshire; a small selection was promptly repacked and posted to me. They must have travelled some 17,000 miles, and several weeks must have passed between their collection and arrival here. Yet they were quite sound and healthy, some having live shoots and roots.

Oncidium crispum had nine pseudobulbs, and a shoot which has since dried, but, instead, the two divisions into which the plant was cut have each a green shoot two inches long. Another O. crispum has a green shoot five inches. The third plant, which was originally tangled in the second, has a six inch shoot "going strong." Oncidium curtum has been the slowest to move, but one plant has now a growing shoot five inches long, the other has one of an inch. Oncidium Forbesii is growing gaily with a three inch shoot on each plant, and Oncidium Marshallianum has a three and four inch shoot on the two plants. There is also a sign of a possible flower spike, which will be allowed to grow if it likes, on the principle that the plant has ample time in which to rest.

The conditions here are not ideal, for on reading about the climatic conditions of their native place one is impressed with its humidity and coolness. The Organ Mountains appear to be not far from the sea, and to have an elevation up to 7,000 feet, which is, of course, unobtainable here. The plants do not seem to have numerous roots and there were no leaves or bark by which the trees they had presumably been growing on could be identified; nevertheless, they have taken very kindly to the material provided for them, and the latest bulbs are, in every instance, much larger than the early ones, which is, I think, evidence that they are happy.

GHENT QUINQUENNIAL EXHIBITION.—Rapid progress is being made with the final arrangements in connection with the Great Quinquennial Exhibition to be held at Ghent from April 14 to 22, 1923. Among the prizes offered for competition is a Silver Cup, valued at 1,000 francs, which has been presented by Messrs. Sanders, of St. Albans and Bruges, in memory of their father, the late Mr. H. Frederick Sander. This cup, distinguished as the "Prix Sander," will be awarded for the best new plant, flowering or non-flowering, not yet in commerce, and not having been shown at any previous Ghent Quinquennial Exhibition. The Jury will assemble on Friday, April 13th, at 2 p.m.

MILTONIA VEXILLARIA AND M. RŒZLII.

WHEN Rœzl was sent out to Colombia by M. Linden in 1871 to obtain Miltonia vexillaria, which had been discovered about five years previously, his consignment of plants was so delayed that all were found to be dead on arrival in Belgium. The following year Chesterton made a similar journey and succeeded in bringing home live plants; in 1873, M. vexillaria flowered for the first time in England.

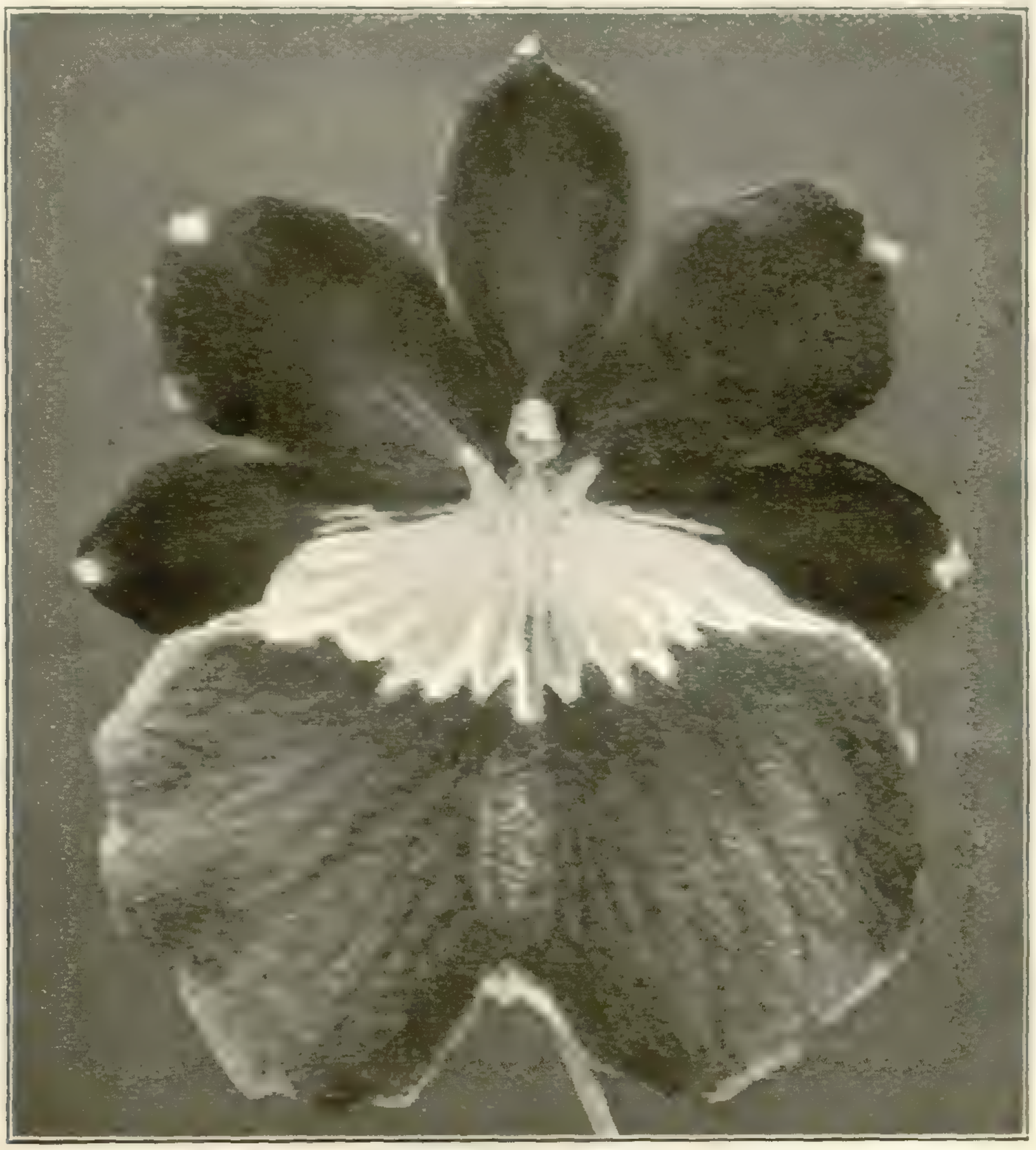
But Rœzl's name will always be remembered by Miltonia Rœzlii, discovered by him in 1872. He was going down the river Dagua, in South America, and had reached about ten miles from the outlet when his attention was arrested by the trunk of a tree that was being borne along down the stream and upon which was an Orchid, quite unknown, in full bloom. With a few others it was brought to England and flowered in 1873.

It is somewhat remarkable that these two species, so very much alike, should flower for the first time in England during the same year. In Miltonia vexillaria the flowers are of a uniform rose-colour, while in M. Rœzlii the chief distinguishing feature is the purplish blotch at the base of each petal. Ever since their introduction large quantities have been imported, although M. Vexillaria, with its many varieties, has been more generally cultivated by amateurs.

In January 1889 a noteworthy event happened in the flowering of the first artificially produced Miltonia hybrid. This was M. Bleuana, raised by M. Alfred Bleu, of Paris, who obtained it by crossing vexillaria with Rœzlii. The seedling was nearly five years old when the first flower appeared. The ambition of hybridists has always been the production of new forms and colourings, hence it seems rather strange that M. Bleu should have crossed two such similar species, for nothing very different from existing flowers could have been expected. But the crossing of vexillaria with Rœzlii yielded one of the surprises of hybrid Orchids, for in nearly every example the flowers of the resulting seedlings are larger than those of either parent.

The common practice of crossing a hybrid with one of its parents has been carried out with M. Bleuana, and in 1906 the first flowers were seen of M. Hyeana (Bleuana × vexillaria). In the following year appeared M. St. André (Bleuana × Rœzlii), in which the other parent is made use of a second time. This intercrossing of vexillaria and Rœzlii has been continued through several generations, and distinguishing names have been given to the various combinations, but as they all contain varying degrees of only the above two species they are in a sense merely varieties of M. Bleuana. However, for horticultural reasons, the respective names of the progressive matings are being recorded.

But now and again, as if to encourage the hybridist to continue his work, a beautiful variety of outstanding merit appears. Two of these rewards have been M. Hyeana var. memoria Peetersiæ and M. Bleuana var. Perle de Vogelzang. These two gems have themselves been crossed, and although the majority of the resulting seedlings have proved by their ordinary pale coloured flowers that reversion to the type characters has taken place, there is one seedling among them that has more than rewarded the raiser. This has been named Miltonia memoria Peetersii. A flower of it has been received from Mons. F. Peeters, of Brussels, who considers it



MILTONIA MEMORIA PEETERSII.

one of the finest seedlings ever raised. The sepals and petals are rich ruby-crimson velvet over their entire surface, this colour extending to the back of these segments, except along the mid-rib, where it is slightly lighter. The labellum is deep rose, a little lighter near the extreme edge, the basal zone creamy-white, with the crest and surrounding area yellowish and marked with radiating lines of brownish-yellow. Miltonia hybrids have been abundantly exhibited at the Royal Horticultural Society, but never has such a magnificent variety as this been in any way approached.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Surrey.

WITH the advance of the present month the daily amount of sunshine will be appreciably increased, and most of the plants will begin to show renewed activity. But nothing will be gained through unduly exciting them into growth by increasing the temperature and moisture, for, generally speaking, it is advisable to keep everything at rest as far as possible. For all matters relative to temperatures, watering and atmospheric conditions generally, the last month's remarks are still applicable. The weather forecasts cannot yet be relied upon, a spell of mild spring-like weather may quickly be followed by a sharp snap of winter. Considerable attention must be given to the ventilation of the houses, for it is essential that a constant supply of fresh air be admitted without causing excessive fluctuations of temperatures.

REPOTTING.—The general repotting of Orchids should commence about this time of the year, although in large collections there is always some such work to be done. The best time for this operation is when new root action is commencing from the base of the young growth or the previous year's pseudobulb. It is always necessary to use clean receptacles. These should be drained in such a manner that it is impossible for the plant to become waterlogged, and whatever material is used as a potting medium the question of watering needs great consideration and foresight, for the very best compost becomes sodden and sour if kept constantly wet.

MEXICAN HOUSE.—Many of the Mexican Lælia species, such as L. albida, L. autumnalis, L. furfuracea, L. Gouldiana, and many of the darker varieties of L. anceps, are passing out of flower, and will be pushing new roots from the base of the last year's pseudobulb. Immediately this is observed, supply fresh rooting materials to such plants, as may be necessary. Plants that are in receptacles sufficiently large for another season's growth need not be disturbed. But if the old compost is decayed it should be carefully removed with a pointed stick; the dusty particles may be washed out so that the drainage will be cleaned and made perfect, and fresh materials added. Coarse osmunda fibre from which the earthy matter has been shaken away makes a suitable compost. This should be pressed firmly around the base of the rhizomes of the plants. Specimens that have overgrown their receptacles, if there are numerous pseudobulbs behind the leading growth, may be broken up and made into shapely plants; retain two or three pseudobulbs behind each lead, and, in repotting, keep the rhizome of the plant just on a level with the rim of the receptacle. A few pieces of crock inserted here and there in the compost will assist the free passage of water, which is always advisable for this class

of plant. After root disturbance, water must be afforded very sparingly, but the surroundings should be kept moist to encourage root activity.

CATTLEYA HOUSE.—This is the resting period of the majority of the occupants of this division. But hybrids of Cattleyas, Læliocattleyas, and Brassocattleyas have attained such numbers that there are at all seasons some that will be more or less active at their roots. Plants that have produced flowers during the winter months may be repotted as soon as new roots are observed to be pushing from the base of the last made pseudobulb. Among the winter-flowering species, plants of Cattleya Trianæ, C. Percivaliana, C. chocoensis, and many of their hybrids, are pushing up flower spikes through the sheaths, and in order to bring their flowers to perfection a little extra water should be afforded them at the roots. As soon as the flowers have developed, the supply of water should be reduced again and very little applied until new roots appear.

ONCIDIUMS.—Most of the winter flowering Oncidiums of the varicosum section, together with such as O. Forbesii and O. concolor, will soon have finished flowering, when they should be kept rather dry at the roots, but just sufficient water should be applied to keep the pseudobulbs from becoming shrivelled. The plants will soon begin to grow afresh, and any necessary repotting should be attended to as soon as roots develop from the young growths. These plants are best grown in pans, which should be only just large enough to accommodate them, as they need restricted rooting space. Pot moderately firm and place the base of the young shoot well down into the compost so that the young roots may soon get into it, thus minimising the danger of damage by slugs and woodlice. These Oncidiums grow best when suspended from the roof-rafters in an intermediate temperature.

VANDAS, AËRIDES, AND SACCOLABIUMS.—Many plants of these genera will be showing signs of fresh root action, and any necessary repotting should be attended to. Vandas and Aërides are best grown in pots or rather deep pans, whilst Saccolabiums give the best results when planted in teak-wood baskets and suspended. A quantity of crocks should be placed in the bottom of the receptacles to provide drainage. Employ clean sphagnum moss as a rooting medium, mixing portions of broken pots among it to allow the water to pass through freely. Fill the receptacles to their rims and arrange the materials higher in the middle of the pot or basket. Finish with a layer of living sphagnum moss over the surface. Clean the plants thoroughly from scale insects which infest the stems and axils of the leaves. Water the roots copiously and place the plants in an airy position in an intermediate temperature.

ODONTOGLOSSUMS, ODONTIODAS AND SIMILAR KINDS.—Many plants are developing their flower spikes. The inflorescences, when of sufficient

length, should be tied to neat sticks and, if possible, be placed in such a position on the stages that they will grow in an arching shape; this adds greatly to the charm of these lovely flowers. Search diligently for slugs which are very destructive to the young succulent flower spikes. As soon as the latter are observed a piece of wadding wrapped round the base of the leaf that shields the spike is a protection while it remains moderately dry. Plants of Odontoglossum citrosmum have commenced to push young growths, but they should still be kept dry at the roots until the flower spikes appear in the centres of the shoots, when they should be thoroughly watered and afforded more atmospheric moisture. O. grande and O. Insleayi should still be resting in the warmest part of the Odontoglossum house; they will require little or no water till growth becomes active.

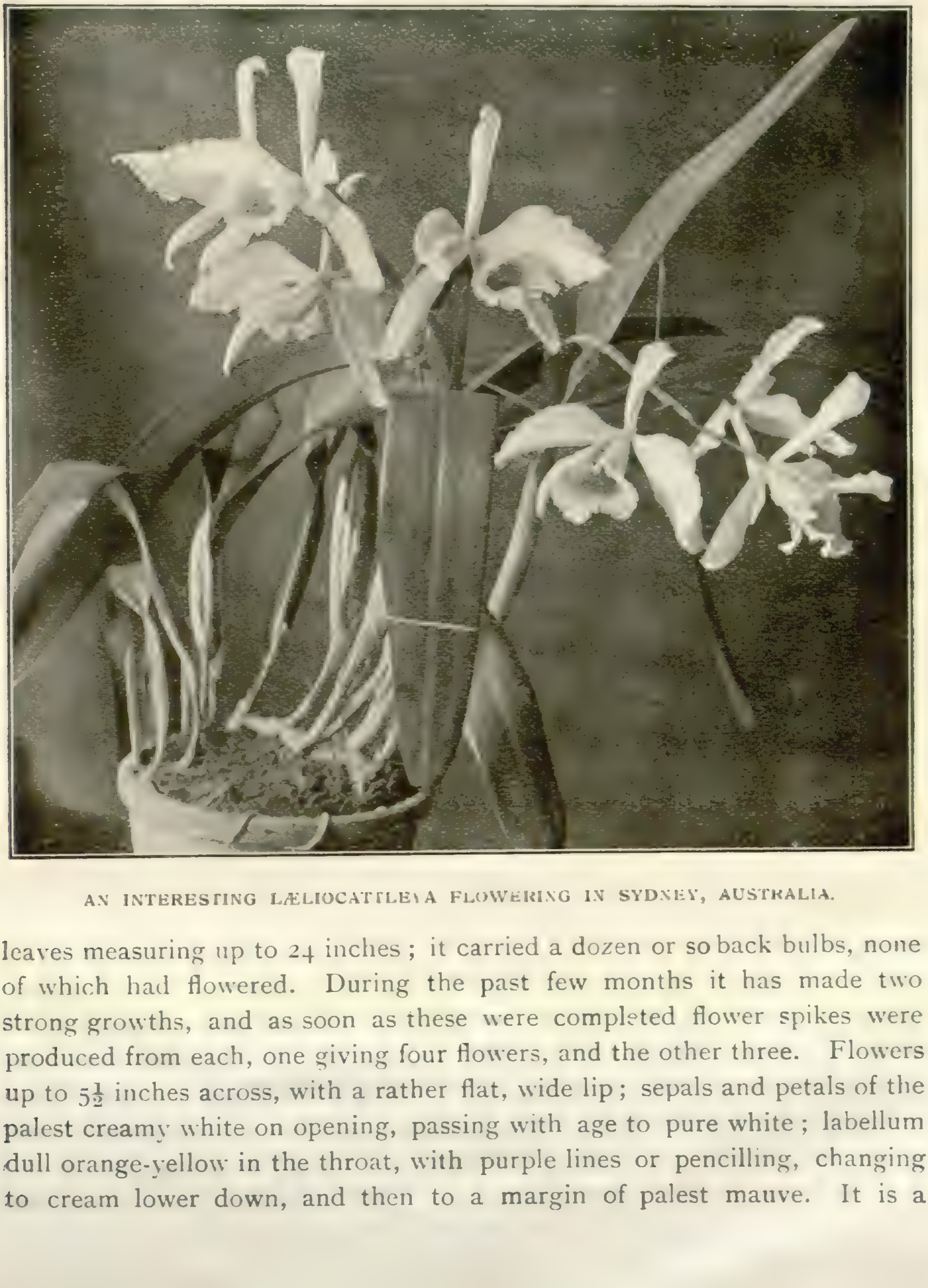
MASDEVALLIAS.—Towards the end of the present month is the period usually chosen for overhauling the Masdevallias. Some of the plants will need top-dressing, while others will require repotting. Any specimens that are root-bound may be shifted on into larger receptacles, but in doing this do not disturb the roots more than is necessary. Others that have become bare in the centres may be broken up and, after cutting away decayed parts, be potted afresh into smaller pots. All the strong growing species, such as M. Harryana, M. ignea, and others, may be grown in ordinary flower pots, but the smaller growing kinds, such as the pure white M. tovarensis, may be cultivated in pans. M. Chimæra, M. Wallisii and M. Backhouseana should in every case be grown in teak-wood baskets, as their flowers are produced in a downward direction, and no crocks should be used for drainage. Osmunda fibre and sphagnum moss in equal proportions, chopped rather finely and mixed together make a suitable rooting compost. The warmest part of the Odontoglossum house is a favourable place to grow this section.

CATTLEYA PHŒBE SNOW.—This novelty has for its parents C. Lueddemanniana var. Empress and C. Cappei alba, the former being a well known white form and the latter a hybrid between white varieties of Schrœderæ and Trianæ. An elegant example of C. Phœbe Snow was awarded a Silver Medal when exhibited by Clement Moore, Esq., at the New York Show on Nov. 9th. Mr. E. J. Hannington informs us that this white Cattleya had sepals and petals of excellent formation and a yellow throat to the labellum. Another promising hybrid is the new Cattleya Oratani obtained by crossing C. Princess Royal (Fabia × Hardyana) with C. Enid (Mossiæ × Warscewiczii). In many features it resembles C. Enid, but has a much darker lip. Mr. Clement Moore's extensive collection contains some remarkably fine varieties of Cattleya Trianæ, which have flowered well during the past few weeks.

EXPORTING ORCHIDS FROM ENGLAND TO AUSTRALIA.

By ARTHUR YATES, Sydney, Australia.

"ABOUT a year ago I received from Messrs. Flory & Black, of Slough, England, a consignment of Orchids, among them being a large Læliocattleya, described as 'an unflowered specimen, of unknown parentage, a distinct old Veitchian plant that the light of New South Wales should make flower.' This plant had two leads, with pseudobulbs and



AN INTERESTING LÆLIOCATTLEYA FLOWERING IN SYDNEY, AUSTRALIA.

leaves measuring up to 24 inches; it carried a dozen or so back bulbs, none of which had flowered. During the past few months it has made two strong growths, and as soon as these were completed flower spikes were produced from each, one giving four flowers, and the other three. Flowers up to 5½ inches across, with a rather flat, wide lip; sepals and petals of the palest creamy white on opening, passing with age to pure white; labellum dull orange-yellow in the throat, with purple lines or pencilling, changing to cream lower down, and then to a margin of palest mauve. It is a

distinct and beautiful variety, and I am wondering if anyone can give me an idea of its parentage and name. The question is, has the long rest on the voyage to Australia had anything to do with forcing this plant into flower? Or is it due to the strong sunlight experienced here? I do not shade my Cattleyas during the winter season, and we have very little dull weather in Sydney, so the plants are thoroughly hardened and well rested. Owing to this treatment some of the plants show signs of scorching, but I find it makes them bloom, and, although rather disfigured, I do not think they are any the worse for it. I am sending a photograph of this Læliocattleya, which I should judge is quite fifteen years old."

We reproduce the photograph kindly sent by Mr. Arthur Yates, as it forms an excellent example of the successful manner in which Orchids may now be forwarded to almost all parts of the world. It shows how a Cattleya will preserve every leaf intact, not only arriving with them, but holding them, even after a journey from England to the Antipodes. This hybrid is no doubt Læliocattleya Fascinator (L. purpurata × C. Schrœderæ), and of the type called Peach Blossom, very delicate and beautiful, but a little wanting in shape, as generally occurs in varieties of this cross. Messrs. Flory & Black inform us that some of these L. purpurata hybrids are very stubborn, and this one was probably so, for they grew it "blind" for eight or nine years, and it was an old plant when they acquired it. Very probably the long rest received by this plant during the voyage had something to do with the flowering event, but the fine result achieved by Mr. Yates is evidence that his locality is eminently suited for Cattleya cultivation, and many of the plants that fail to flower well in England may prove very suitable subjects under his care in Sydney. It is of additional interest to learn that in a further consignment of 86 various hybrids recently received by this amateur only two of them died in transit. Mr. Yates has in his collection an exceptionally fine variety of Cattleya Mendelii, well worthy of every care and propagation. The flower is well above the average size, has pure-white sepals and petals, and a white labellum in which each of the side lobes bears a royal purple blotch, while the throat is orange coloured. A photograph well shows the finely formed habit of this meritorious variety, which to many amateurs would prove far more attractive than some of the totally white forms.

PHALÆNOPSIS TETRASPIS.—The first living plants received in England of this Malaysian species were sent to Mr. Wm. Bull, of Chelsea, in 1881, by Major-General E. S. Berkeley, who found them growing on Mangrove and other trees in muddy swamps, at the extreme end of the creeks, where the water is fresh, and where the plants hang from the branches a few feet above the water, growing with extraordinary luxuriance.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Boadicea	Bc. Digbyano-Schroderæ × C. Warscewiczii	Sanders.
Brassocattleya Hercules	Bc. The King × C. Lueddemanniana ...	Sanders.
Brassolæliocattleya Lemoniana ...	Blc. The Baroness × C. Schroderæ ...	Flory & Black
Brassolæliocattleya Our Prince ...	Bc. Mrs. J. Leemann × Lc. Black Prince ...	Sanders.
Cattleya Marita	President Wilson × aurea	Duke of Marlborough.
Cattleya Oratani	Princess Royal × Enid	Clement Moore, Esq.
Cattleya Phœbe Snow	Lueddemanniana × Cappei	Clement Moore, Esq.
Cypripedium Britain's Monarch ...	Alcibiades × Earl of Tankerville	S. Gratrix, Esq.
Cypripedium Chorltonville	Pyramus × Shogun	S. Gratrix, Esq.
Cypripedium Emily Brown	G. F. Moore × Fairrieanum	F. J. Hanbury, Esq.
Cypripedium Etta	Mrs. Rickards × Chardwar	R. W. Rickards, Esq.
Cypripedium Gainsborough ...	Thompsonii × Fairrieanum	F. J. Hanbury, Esq.
Cypripedium Helena	aureum × Shogun	S. Gratrix, Esq.
Cypripedium J. M. Black	Beryl × Eurybiades	Flory & Black.
Cypripedium Kervallii	Actæus × Mary Gratrix	A. T. Cussons, Esq.
Cypripedium Minnehaha	Gaston Bultel × Minos Youngii	J. Evans, Esq.
Cypripedium Noel II	nitens-Leeanum × Nirvana	Dr. Craven Moore.
Cypripedium Oxon	Psyche × Lord Ossulston	Duke of Marlborough.
Cypripedium Pacatta	Troilus × Pyramus	Armstrong & Brown.
Cypripedium Statul	Clinkaberryanum × Mrs. Cary Batten ...	Col. Sir J. Rutherford.
Cypripedium Swallow	Swallowtail × Satyr	Capt. W. Horridge.
Cypripedium Torelor	bourtonense × nitens-Leeanum	B. J. Beckton, Esq.
Læliocattleya Alpha III.	C. Hardyana × Lc. luminosa	Dr. Gratiot.
Læliocattleya Betus	L. Loma × C. Brenda	McBean.
Læliocattleya Champagne	Lc. warnhamensis × C. armainvillierensis	Sir J. Colman.
Læliocattleya Enchantment	C. Rex × Lc. Isabel Sander	Sanders.
Læliocattleya Eximantin	Lc eximia × C. Mantinii	F. J. Hanbury, Esq.
Odontioda Antinea	O. illustrissimum × Oda. Wilsonii ...	P. Smith, Esq.
Odontioda Brightness	O. Eva × Oda. Charlesworthii	C. J. Lucas, Esq.
Odontioda Fairy	Oda. Vuylstekeæ × O. Magali Sander ...	Sanders.
Odontioda Pegasus	O. amabile × Oda. Madeline	McBean.
Odontioda Royal Scot	O. King Arthur × Oda. Coronation ...	McBean.
Odontioda Stephensonii	O. Aireworth × Oda. Schroederi	Charlesworth.
Odontocidium Graireanum	O. Thompsonianum × On. macranthum ...	Mons. H. Graire.
Odontoglossum Florence	Rolfeæ × Rosalind	Mansell & Hatcher.
Odontoglossum Isabel	V.C. × Gatton Emperor	Sir J. Colman.
Odontoglossum Mandarin	McNabianum × Jasper	C. J. Lucas, Esq
Odontoglossum Purple Beauty ...	Edwardii × Lady Roxburgh	Sir J. Colman.
Odontoglossum Vega	King Arthur × Midnight	McBean.
Odontoglossum Zenarden	Zena × ardentissimum	C. J. Lucas, Esq.
Odontonia Luna	Ota. Magali Sander × O. crispum	Charlesworth.
Sophrocattleya Saxaurea	C. aurea × Sc. Saxa	Sanders.
Sophrolæliocattleya Lustre	S. grandiflora × Slc. Sandage	Charlesworth.
Vuylstekeara Aspasia	Oda. Charlesworthii × M. Charlesworthii	Charlesworth.

ERRATA.—Page 20, Cattleya Theodora = C. Amy May: Læliocattleya Venada = Lc. Misiones: Odontoglossum Fairy should read Odontioda Fairy (Oda. Vuylstekeæ × O. Magali Sander).

BRASSOLÆLIOCATTLEYA OUR PRINCE.—This new hybrid, raised by Messrs. Sanders, is the result of crossing Lc. Black Prince with Bc. Mrs. J. Leemann. One of the first to flower has a gorgeous labellum, combining the rich coloration seen in the best of both parents.

GALEANDRA SPECIES.

GALEANDRA BATEMANII was introduced by Mr. Barker, of Birmingham, through his collector Ross, who met with it at a place called Kisatipa, ten leagues from Melacatapec, growing at the upper end of a dry ravine, terminating half-way up the mountains in a south-west aspect. Ross stated that the mountains surrounding this ravine, that is on the north-east side, were covered with a great variety of Orchideæ, whilst on the south side of the ravine there were none to be found. G. Batemanii was subsequently sent from Southern Mexico to the Horticultural Society of London by Hartweg. This plant had been cultivated for more than half a century under the name Galeandra Baueri, an error that originated in Bateman mistaking the Mexican plant discovered by Ross for the same species as that collected by Martin in French Guiana, a locality 1000 miles away. The pseudobulbs are variable, 4-6 inches long, and prolonged at the apex into a deciduous leafy stem. Raceme terminal, many-flowered. Individual flowers 2½ inches long; sepals and petals buff-yellow, or green-tinted with brown, lip large, sub-orbicular, with a deep cleft in the anterior margin, the basal half rolled over the column into a tube and prolonged below into a funnel-shaped spur, usually light yellow, the apical half rose-purple bordered with white.

G. Baueri was originally collected by Martin in French Guiana, his specimen being the one on which Lindley founded the genus, dedicating the type species to Francis Bauer, a skilful draughtsman. G. Baueri was first introduced by Messrs. Loddiges in 1840, but did not flower in England until 1844. It has clustered stems, sub-cylindric or fusiform, 15 20 inches long. Raceme terminal, drooping and many-flowered. Flower 1½-2 inches across vertically, sepals and petals yellow, sometimes with a brownish hue, tube of lip deep yellow, front lobe of same paler and with red-purple lines.

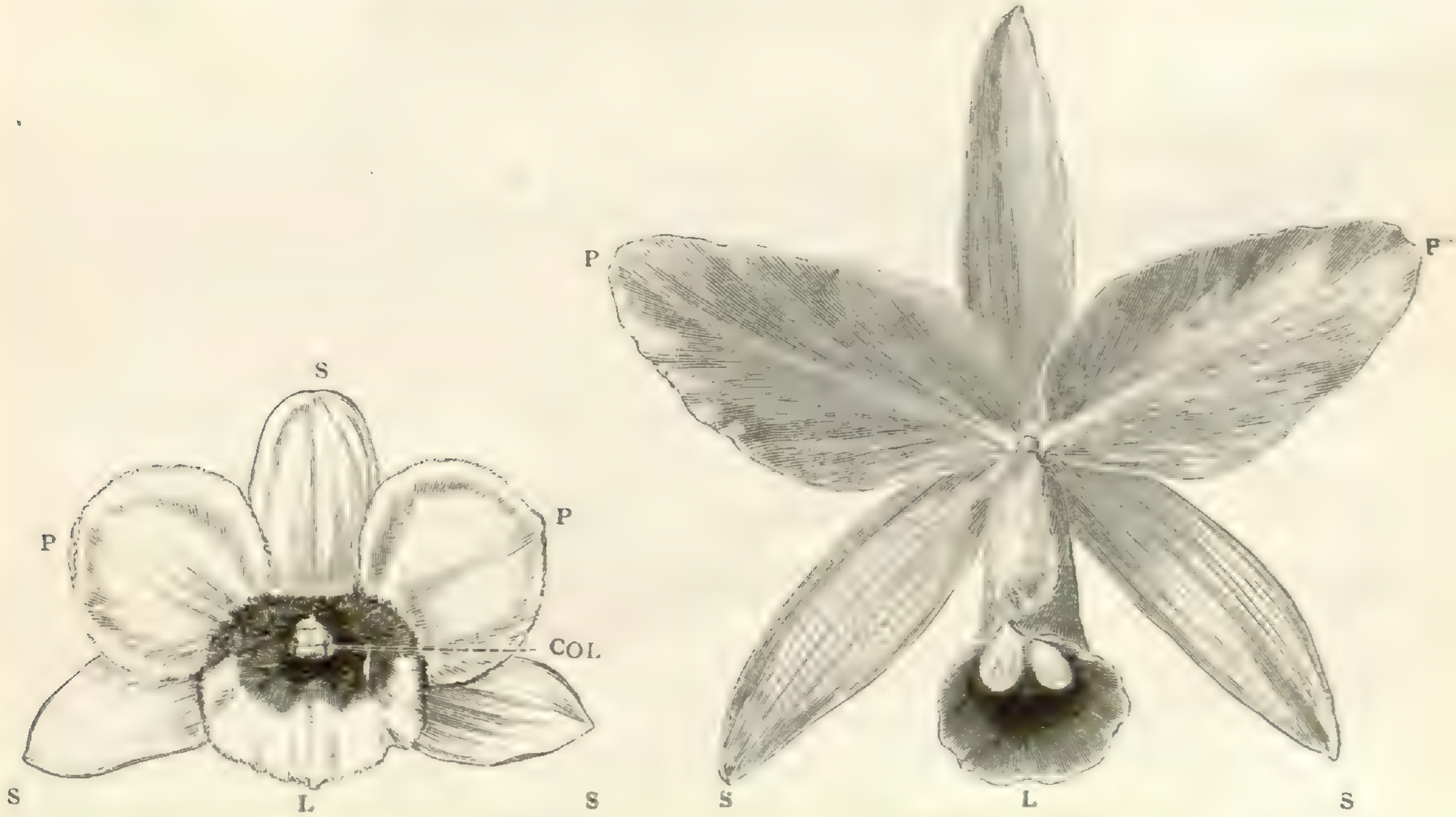
G. Devoniana was first discovered by Schomburgk, who remarked: "During our peregrinations we have seen this plant nowhere else than on the banks of the Rio Negro, a tributary of the Amazon, where in the neighbourhood of Barcellos we found it growing in large clusters on the trees which lined the river, or even on the ground where the soil consisted of vegetable mould. It was so luxuriant in growth that some of the large clusters of stems which sprouted from a common root were from 10-12 feet in circumference. The stems are often from 5-6 feet high: at the lower part almost of a purple appearance but changing into green higher up. As the flower is not only larger than the generality of its tribe, but handsome, I availed myself of the opportunity of naming it in honour of the Duke of Devonshire, one of the most successfnl of this, one of the most interesting tribes among monocotyledonous plants." It was afterwards found by the

same explorer in British Guiana, growing on the trunks of trees on the banks of the river Berbice. The stems are tufted, attenuated and leafy upwards, 18-24 or more inches high. Spikes terminal, few-flowered. Flowers 3-4 inches across vertically; sepals and petals brownish green, sometimes striated with light green; lip large, obscurely three-lobed, the side lobes forming a wide tube that is produced into a short spur; the tube white, spur green; front lobe white streaked with purple.

G. nivalis has terete stems, 6-12 inches long, jointed at intervals of about an inch, the internodes covered with a whitish sheath. Raceme short, few-flowered. Flowers two inches across vertically: sepals and petals light olive-green; lip prolonged at the base into a yellow-green spur, white with a purple blotch on the disc.

NOTES ON THE SEGMENTS OF ORCHID FLOWERS.

IT is common knowledge that the flowers of many Orchids contain six prominently displayed segments: three are known as sepals, two as petals, and one that is alluded to as the labellum or lip. In studying the structure of a flower, as well as in understanding the description of a



DENDROBIUM FARMERI. CATTLEYA BOWRINGIANA.

S—sepals. P—petals. L—labellum.

species or hybrid, it is necessary to be acquainted with the correct names of the various segments, and for that reason the following notes may prove of value to amateurs.

An examination of an Orchid flower will show that the various parts are

arranged in whorls of three. The three outer segments are called sepals, and in the adjoining illustrations of Dendrobium Farmeri and Cattleya Bowringiana, each one is marked with a letter S. In many of the popular genera, such as Odontoglossum, Lælia, Cattleya, and Dendrobium, the three sepals of any particular flower closely resemble one another in formation and colour. The odd segment at the top is known as the dorsal, or median, sepal, and the two lower ones as lateral sepals.

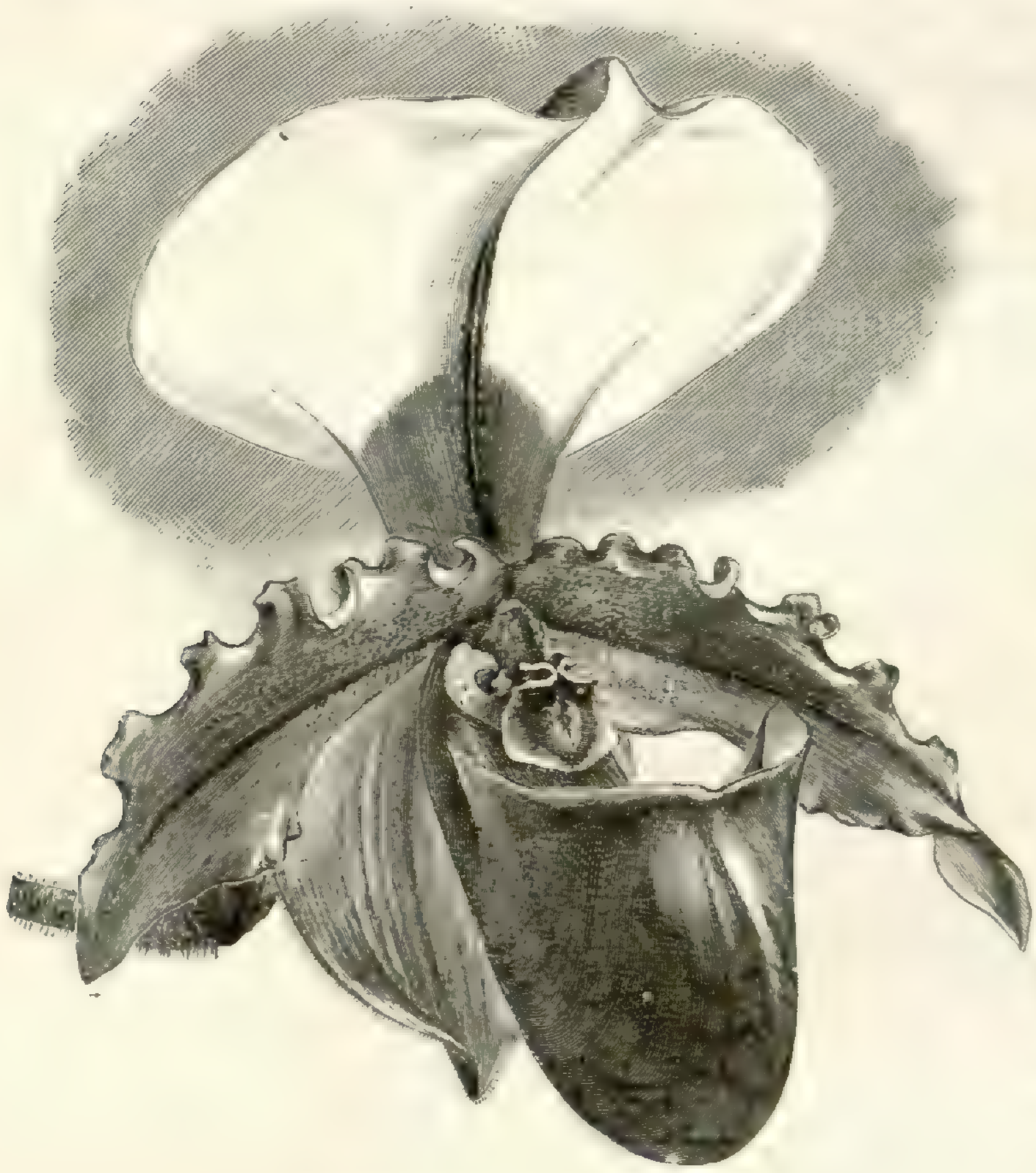
In some flowers the sepals are developed to a comparatively excessive degree, so much so that they almost conceal the other segments. A noteworthy example occurs in Masdevallia amabilis, in which the three sepals are united at their bases and form a tube-like structure. In Masdevallias of the Chimæra section the sepals are unusually well developed and form the chief attractive feature of these curiously-formed flowers. The allied Cryptophoranthus atropurpureus (Masdevalia fenestrata) is a flower that greatly interested Darwin, who remarked that it "is an extraordinary flower, for the three sepals always cohere together and never open. Two minute lateral windows, seated high up in the flower and opposite each other, afford the only entrance into the flower; but the presence of these two minute windows shows how necessary it is that insects should have access in this case as with other Orchids. At the bottom of the roomy and dark chamber formed by the closed sepals, the minute column is placed, in front of which the furrowed labellum stands, with a highly flexible hinge, and on each side the two upper petals, a little tube being thus formed. Hence, when a minute insect enters, or a larger insect inserts its proboscis through either window, it has by touch to find the inner tube in order to reach the curious nectary at its base" (*Fertilisation of Orchids*).

MASDEVALLIA AMABILIS.
Petals, lip and column concealed within the sepaline tube S.

CRYPTOPHORANTHUS ATROPURPUREUS.
The Window Orchid.

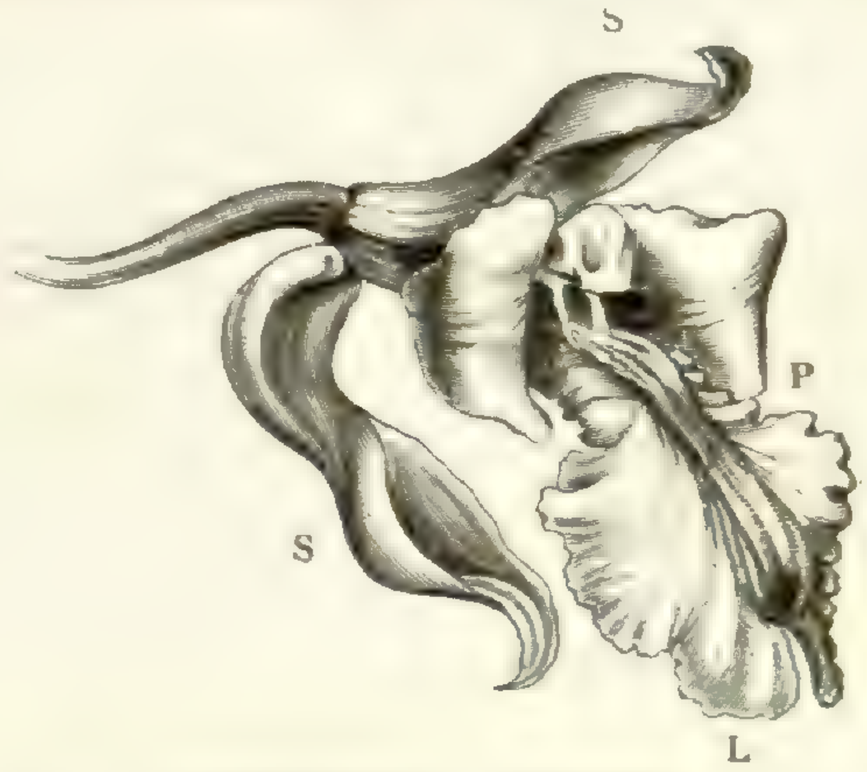
In the genus Cypripedium it is the dorsal sepal that affords the chief

attraction. This particular segment has received much attention from horticulturists, in fact, it has been developed out of all proportion to the other segments of the flower. In brief descriptions of the numerous hybrids it has frequently happened that the dorsal sepal alone has been described. The lateral sepals are, however, differently placed; instead of standing out separately one on either side of the flower, they are united at their inner edge and take the form of a single segment that is sometimes referred to as the ventral sepal. In the accompanying illustration of Cypripedium Spicerianum the conbined lower sepals can be seen immediately behind the labellum, or slipper-like pouch. On rare occasions Cypripedium flowers are produced in which this segment is divided, the two portions standing out separately like the two lateral sepals of other genera.



CYPRIPEDIUM SPICERIANUM.

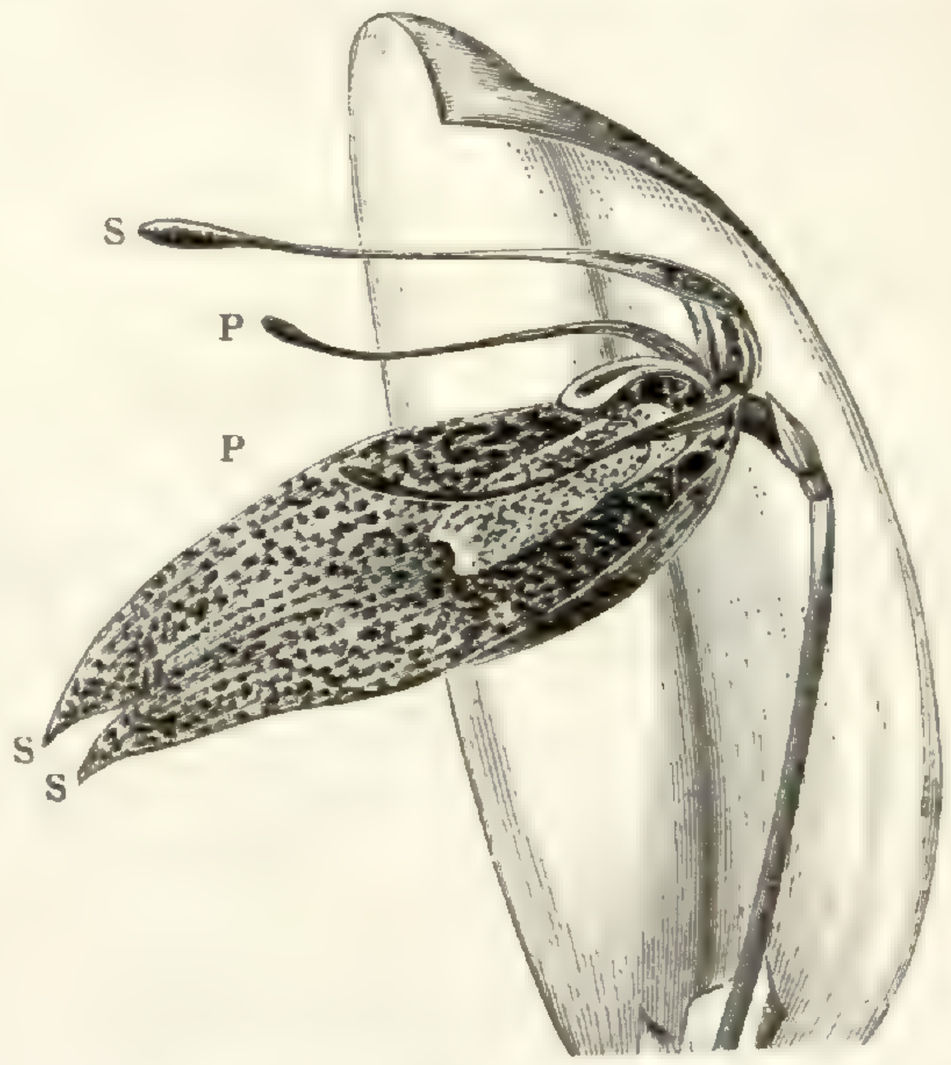
An interesting point is the manner in which the sepals of Cypripediums are arranged when in the bud stage. All Cypripediums from the tropics of the Old World have the sepals arranged in imbricate form, a term denoting that the dorsal sepal is folded within the lateral pair; they have been classified in the section Paphiopedium. The American species have valvate sepals, or in other words, the sepals meet one another only at their sides; these have been classified under the headings Selenipedium and Phragmipedium. Rodriguezia venusta affords another example of the two lower sepals combining, not only into one segment, but forming a boat-like body of curious construction.



RODRIGUEZIA VENUSTA

With lower sepals connate into a boat-like body

While in the genus Cypripedium it is the dorsal sepal that is prominently developed, just the reverse takes place in Restrepia maculata, for, as may be seen in the accompanying figure, this segment is represented by an almost thread-like organ (S). The two lateral sepals cohere almost to their extremities, and form the chief attractive feature of this and other species of the genus. It is a similar example of the manner in which the lateral sepals cohere in Cypripediums, although in this latter genus the cohesion is continued to the extreme points, and no V-shaped opening occurs.



RESTREPIA MACULATA

With thread-like upper sepal and petals and broad coherent lateral sepals.

Although Disas are not generally represented in collections by more than a very few species, D. grandiflora being that most usually seen, one little point concerning them is worthy of note. The flowers possess a hood-shaped segment that is oftentimes erroneously spoken of by amateurs as the labellum, but which is, in fact, the upper or dorsal sepal; by its frequently large size and formation it seems to fulfil the part played by the labellum of other Orchids. The real labellum in Disas is an organ of comparative insignificance.

(To be continued.)

PHOLIDOTAS.—Though allied to Cœlogyne and requiring similar culture, horticulturally the plants included in this genus have not so much to recommend them. The flowers are of small size, though freely produced, and are carried in terminal racemes, each flower being partly hidden by an overlapping bract. The plants have either decided pseudobulbs on creeping rhizomes, or ascending articulated stems with fleshy joints. P. articulata, conchoidea and imbricata are the three species generally met with.—*Sanders' Orchid Guide.*

EULOPHIA GUINEENSIS.—This species, perhaps the best known of the genus, was introduced from Sierra Leone, in 1821, by George Don, when collecting for the Horticultural Society of London, in whose garden at Chiswick it first flowered during the following year. It was successfully cultivated in the Burford Lodge collection by using a compost composed of fibre, moss and broken crocks. During the growing season it was kept in the East Indian house with liberal supplies of water, but when in flower a more airy and cooler atmosphere was selected.

GEOGRAPHICAL DISTRIBUTION OF ORCHIDS.

REGARDING the geographical distribution of Orchids, Messrs. Veitch, in their *Manual of Orchidaceous Plants*, state that within what is often called the equatorial zone, a space extending to about twelve degrees on each side of the equator, and which includes nearly the whole of the Malaysian Archipelago and a great part of the continents of Africa and South America, the climatic conditions are such that epiphytal and other tropical Orchids are generally distributed, even in Africa, of whose tropical vegetation much yet remains to be investigated. It is within this zone that monopodial Orchids attain their greatest development; in Malaysia are found gigantic Stauropses and Grammatophyllums; in Africa giant Angræcums cling to massive Baobab and Iron-wood trees; and of sympodial Orchids gigantic Eulophias and Lissochili occur in certain places in the Congo and other regions of equatorial Africa in such quantities as to supply a feature in the landscape. Beyond this zone, both on the northern and southern sides, the distribution of Orchid life is much more irregular, being immensely influenced by local causes, especially by the direction of the trade and periodical winds by which the evaporation of the ocean is carried into certain localities more than in others, and also by the height and trend of the mountain ranges.

A few well-known instances need only here be noted. In the eastern section—the mountains of Aracan and Moulmein, which receive the south-west monsoon on their western slopes—are the richest Dendrobe and Vanda districts known. The Khasia Hills and the lower Himalayan zone upon which, as already stated, is precipated much of the enormous evaporation raised in the Bay of Bengal is also an exceptionally rich Dendrobium region, and is besides the home of the finest Cœlogynes and Cymbidiums yet discovered. In the western section—on the Cordilleras of Venezuela and Colombia are aggregated most of the finest Odontoglossums, Cattleyas of the labiata type, Miltonias, Lycastes, Masdevallias, and numerous others highly valued by cultivators, caused by the constant action of the north-east trade wind in rendering the climate peculiarly suited to Orchid life. And from the action of the south-east trade wind, the coast range of Brazil with the country in its immediate vicinity is the home of many of the most beautiful Cattleyas, Lælias, Oncidiums, Zygopetalums, Sophronites and other Orchids prized for their large and brilliant flowers.

On the mountain ranges of great altitude, as the Himalaya in the eastern and the Andes of Colombia and Peru in the western section, the vertical range of Orchids is considerable. On the Andes they ascend to elevations where the average annual temperature is less than in the lower and median latitudes of the temperate zone, some even ascending to the immediate

vicinity of perpetual snow, as Epidendrum frigidum, Oncidium cucullatum var. nubigenum, Odontoglossum densiflorum, and others. It must not, however, be inferred that such Orchids are hardy, that is to say—that they can be cultivated in the open air in this or any other country equally remote from the equator. Those epiphytal Orchids that occur at the highest altitudes, as the species just mentioned, some of the Odontoglossums of Colombia, the Masdevallias and Epidendra of Peru, etc., are never subjected to such extremes of temperature as is sometimes experienced in the south of France, in Italy, and the middle and southern States of North America, and under which they would perish. Apart from physical obstacles as the Himalaya in Asia, the Sahara in Africa, the arid tracts of northern Mexico and the Pampas of Argentina, which prevent the spread of such Orchids beyond their present sphere, climate alone would prove fatal to them.

EXPORTING CYPRIPEDIUMS TO AUSTRALIA.—From Mr. D. J. W. Chandler, of East Malvern, Victoria, Australia, we have received a photograph showing Cypripedium Thalia var. Mrs. F. Wellesley and Cyp. Leoniæ Gratrixiæ just as they were received from England. Both plants are in perfect condition, the Thalia carrying a fully developed flower, although on a somewhat attenuated stalk. Mr. Chandler writes:—"This photograph shows two Cypripediums taken from a consignment just received from Messrs. J. & A. McBean, Cooksbridge, Sussex. The whole lot arrived in the same splendid condition. There was not a sign of a rotten leaf, in fact, they had the appearance of having been in the packing case for a few days only. One of them flowered on the journey. These plants left England October 16th, and arrived on November 30th. This speaks well for the growers, and I think it worthy of being placed on record."

CYPRIPEDIUM EURYBIADES VAR. THE KING.—At the meeting of the Manchester Orchid Society, held December 21st, 1922, a First-class Certificate was given to Cypripedium Eurybiades var. The King, exhibited by S. Gratrix, Esq., Whalley Range, Manchester. This is a remarkably fine flower, in which all the segments are unusually well developed and brightly coloured. The dorsal sepal is orbicular in shape, $3\frac{1}{4}$ inches in width, porcelain white, except for a greenish area at the base, and prettily marked with rose-purple spots on the central portion. The wide petals and broad lip are yellowish-green, strongly suffused with a mahogany tint. Cyp. Eurybiades is the result of crossing Alcibiades with Hera var. Euryades, two closely related parents, for both are composed of insigne, Spicerianum and Boxalli. Since the above award was given, Mr. John Evans, of Colwyn Bay, North Wales, sends us a flower of this grand variety, and we can fully certify its excellent qualities.

GHENT QUINQUENNIAL EXHIBITION, 1923.

OWING to events of world-wide importance it was not possible to hold an exhibition in Ghent during the spring of 1918, the year in which the great quinquennial event was due. Ten years have elapsed since the last show in 1913, and it will be interesting to see how the culture of Orchids has advanced or been affected when in April next the principal amateurs and trade growers bring forth their best products.

At the 1913 event, Mons. Firmin Lambeau exhibited a remarkable selection of hybrids, winning the Gold Medal presented by the King of the Belgians. Several fine species were included, among them being Eulophiella Elizabethæ, with six spikes of flowers, the rare Cymbidium Humblotii, and a specimen of Cattleya Schrœderæ alba carrying fourteen pure-white flowers. No doubt this well-known amateur will have some equally good things for this year's event.

Mons. Chas. Dietrich was also a successful prize winner, his plants including some beautiful varieties of Phaius, which many amateurs would like to see again. Brassocattleyas were in perfection, and it is possible that further hybrids have been raised in this noted collection, if so, they should include some meritorious novelties.

Count Joseph de Hemptinne staged a group of Odontoglossum crispum, their fine condition and great variety meeting with much appreciation. A remarkable specimen of Cymbidium Lowianum with 36 many-flowered spikes was also staged. It is to be hoped that many of the Odontoglossums will be seen again, for owing to the lack of importations, the fine varieties of the past are always subjects of much interest.

Dr. Ballion staged many excellent species and hybrids in his Gold Medal group. Mons. E. Praet had an interesting collection of Indian Orchids which received a similar award. New species do not appear as rapidly as garden-raised hybrids, and during recent years a large number of them have disappeared from collections, hence it is much to be hoped that the Belgian amateurs will again stage a varied selection. Mons. Maurice Verdonck, had an interesting collection of Orchids from Colombia, Venezuela, Peru and the Equator. Another Gold Medal group from this exhibitor will add much to the attractions of this section.

Sir Jeremiah Colman, Bart., received a Silver Medal for Dendrobium Lady Colman, and a similar award for Odontioda Bradshawiæ var. Lady Colman. Belgian amateurs are awaiting with much interest the 1923 exhibits from his extensive collection.

English trade growers have always been well represented on these important occasions, and there is good reason to believe that some wonderful novelties will be staged for this year's event. Among the Belgian

and French trade growers who have on previous times done so much towards the success of these exhibitions are Mons. Vuylsteke, Mons. Pauwels, MM. Duchesne & Lanthoine and MM. Vacherot & Lecoufle.

WILSONARA DECEPTION.—The generic term Wilsonara was formed to include hybrids composed of Cochlioda, Odontoglossum and Oncidium. The first one having this combination was W. insignis (O. illustrissimum × Oncidioda Charlesworthii), the second appeared in W. Sanderæ (Oda. Sanderæ × On. macranthum), and now we record a third in W. Déception (Oda. Charlesworthii × On. macranthum), which has been raised by Messrs. Sanders. At first sight it appears to be a greenish variety of On. macranthum, there being but little evidence of Oda. Charlesworthii, and the specific name denotes this deception.

MASDEVALLIA DAVISII.—This species is said to be the only one of the genus whose flowers are pure yellow. It was discovered by Davis, in 1873, when collecting for Messrs. Veitch on the eastern Cordillera of Peru, a short distance from Cuzo. It was found growing on the mountains at a considerable altitude, about 11,000 feet. Bungeroth described it as growing on the mountain sides in the cool shady places, often watered by a small stream, and along with Sobralias. The natives call the flowers banderitas, meaning little flags, because at a distance they appear like little standards, standing erect among the foliage that surrounds them.

EPIDENDRUM ARMENIACUM.—Originally imported by Messrs. Rollissons, of Tooting, this species was the subject of a coloured plate in the *Botanical Register*, t. 1869, where we read: "It was first seen in England in flower in the year 1835, at one of those splendid exhibitions in the garden of the Horticultural Society, which attest more strongly than even the country residences of our nobility and gentry the skill and perseverance of English gardeners. There, in the midst of the dazzling scarlet or pink of various kinds of Cacti, and surrounded by the brilliant plumes of Chinese Azalea flowers, that weighed down their graceful branches, which really seemed as if they were proud of their lovely burthen, from a basket of humble moss, a little tuft of stems of this species was seen to rear its modest head, as if in hopelessness of attracting notice in so gay a company. The neatness, however, of its tiny flowers, the pleasing tint of its apricot-coloured petals, the elegant form of their slightly nodding or even drooping clusters, and the novelty of their form in so well known a genus as Epidendrum, arrested the curious observer, who soon found the symmetry and simple elegance of the little blossoms of Epidendrum armeniacum compensate for the absence of those more obvious beauties that adorned its gaudier rivals."

EPIDENDRUM VITELLINUM.

OF all the many species of Epidendrum, but few have obtained so much popularity as E. vitellinum, and this no doubt on account of the bright cinnabar-red colour of the flowers. This species has a history dating back to 1830, when specimens were collected by Dr. Coulter on the high mountains near Xalapa, in Mexico. The first living plants received in England were collected by Hartweg on the Cumbra of Totontepeque, and one of the first to flower was seen in Mr. Barker's collection at Springfield, near Birmingham, in 1839. It was subsequently collected by Rœzl, near the Vera Cruz and Mexico railway, a few leagues from Orizaba, growing upon old and stunted oaks, in a district where it rains regularly from one to two hours a day from May to October, and where from December to February dense fogs are common, and frost by no means rare during the night.

Probably in no present-day collection is this beautiful species better cultivated than at Bridge Hall, Bury, Lancs. On October 5th, 1922, Mrs. Bruce and Miss Wrigley exhibited 24 plants at the Manchester Orchid Society, and received the high award of a Gold Medal, while gold medal points were granted to their able cultivator, Mr. Arthur Burns. These plants carried a total of about 45 tall spikes, many of them branched, and several with over twenty flowers. A photograph of the group, kindly sent by Miss Wrigley, is a permanent record of this fine achievement.

Odontoglossum grande is another of the fine old species that is successfully cultivated in the Bridge Hall collection. On the same occasion, fifteen specimens were exhibited at the Manchester Orchid Society, and a Cultural Certificate was given to each plant. A photograph shows one of them with five spikes and sixteen flowers, truly a fine result.

Miss Wrigley informs us that all the above plants were purchased by her father, Mr. O. O. Wrigley, many years before he died in 1917. Their splendid growth reflects great credit on the gardener, who unfortunately has to contend with an extremely bad climate. Such fine cultural results are not only very much appreciated by all who see them, but are a great encouragement to others, more especially to those similarly situated in an unfavourable atmosphere.

CYPERORCHIS ELEGANS.—This was originally discovered by Dr. Wallich, in 1821, in the forests of Nepal. Later on it was found by Griffith on the Khasia Hills near Myrung in 1835. The racemes are dense, pendulous and many-flowered. Individual flowers about 1½ inches long, of a uniform light ochreous-yellow, the sepals and petals having recurved tips, the lip narrowly wedged-shaped, and with two orange raised lines on the disc.

CYPRIPEDIUM WORSLEYI.—One of the finest Cypripedium hybrids yet seen has appeared amongst a batch of seedlings originally raised by Mr. Branch in the collection of the late Mr. Wm. R. Lee, of Plumpton Hall, Heywood. It is said to be a cross between Cyp. Earl of Tankerville and Lady Dillon, though the influence of the former is not apparent. But whatever slight doubt is attached to the parentage there is no question regarding the majestic result now seen in the first of the batch to flower. The dorsal sepal is over $3\frac{1}{4}$ inches in width, porcelain white, with the basal area greenish, and boldly marked with bright reddish-purple spots. The petals are unusually well-developed, being $3\frac{1}{4}$ inches long and $1\frac{3}{4}$ inches wide, with a purplish tinge and darker venation. The large labellum is similarly marked and coloured. This grand flower was carried on a stalk fully 18 inches in height, and when one takes into consideration the fact that the plant is as yet in only a three-inch pot, there is every good reason to believe that the above dimensions will be exceeded in future years.

THE WONDERS OF ORCHIDS.—"For what purpose can the world have been adorned with these Orchideous plants? To man or animals they are scarcely ever of any known use. No honey is secreted by their flowers; neither poison, medicine, nor food, are collected in the recesses of their stems; and their very seeds seem unfit for feeding even the smallest bird. We can scarcely suppose them provided for the purification of the unwholesome atmosphere of the forest recesses in which they delight, for their organization is that of plants whose leaves perform their vital actions too slowly to effect a purpose. For what can they have been formed, unless to delight the sense of man, to gratify his eye by their gay colours and fantastic forms, and to show the inexhaustible fertility of that creative power which we recognise everywhere in nature. If this be not the object of those countless changes of form and colour which the Orchis tribe exhibits, we shall scarcely comprehend why in the genus Oncidium the lip bears at its base a collection of tubercles which are not only different in every species, but so strangely varied that 'eye of newt and toe of frog' are the least singular of the forms that lie cowering in the bosom of their petals; the heads of unknown animals, reptiles of unheard-of figures, coils of snakes rising as if to dart upon the curious observer, may all be seen in the blossoms of the various species, whose very flowers may be likened to unearthly insects on the wing."—Lindley (*Bot. Reg.* 1833, *t.* 1569).

MANCHESTER AND NORTH OF ENGLAND ORCHID SOCIETY.—Meetings will be held on the following dates:—February 1st, 15th; March 1st, 15th; April 5th, 19th; May 3rd, 17th; June 7th, 21st. All exhibits must be staged before twelve a.m.

TREVORIA LEHMANNI.

THE genus Trevoria was named in honour of Sir Trevor Lawrence by Mr. F. C. Lehmann. Our illustration is of T. Lehmanni, a native of Colombia. The flowers measure over an inch long, are pale green in colour, the petals, lip and column being white. Among its remarkable features are

TREVORIA LEHMANNI.

the one-sided racemes, the inverted flowers, the very concave side lobes ot the lip, forming a rounded sac at the base, and a curious fringed margin which surrounds the base of the column. Lehmann suggested that the position of the column and lip, as well as the peculiar shape and insertion of the stigma, may set at nought some of the views regarding the fertilisation of Orchids by insects.

ROYAL HORTICULTURAL SOCIETY.

January 16th, 1923.

MEMBERS of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, Pantia Ralli, J. Wilson Potter, A. McBean, W. J. Kaye, J. E. Shill, F. K. Sander, A. Dye, E. R. Ashton, C. H. Curtis, R. Brooman White, C. J. Lucas, Stuart Low, Frederick J. Hanbury, A. Dye, and H. G. Alexander.

AWARDS OF MERIT.

Brassocattleya British Queen (Bc. Digbyano-Mendelii × C. Lord Rothschild); from Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes). A very large and showy hybrid of a uniform rose-pink colour in the sepals and petals, the immense labellum prettily fringed, of deep rose tints and with an orange throat.

Sophronitis Lowii; from Pantia Ralli, Esq. An interesting and pretty plant carrying ten yellow flowers, probably a colour variation of S. grandiflora. S. Lowii was previously exhibited by Messrs. Low & Co. on March 3rd, 1908.

Cymbidium Curlew var. Feather (Butterfly × Alexanderi); from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). An attractive variety of this new hybrid. The arching spike carried eleven large flowers, cream coloured with rose tinge, the labellum having a garnet coloured blotch on the front lobe and markings of similar colour on the side lobes.

Cymbidium Doreen (Pauwelsii × Doris); from Messrs. J. & A. McBean. An elegant result, in which the spike carried seven flowers of exceptional size, of buff colour, tinged with gold on the margins of the segments, the inner area stained with reddish-brown, and marked with dark spots and lines.

GROUPS.

Messrs. Charlesworth & Co. were awarded a Silver Flora Medal for an attractive exhibit, containing several specimen plants of Cattleya Enid, the variety alba having white sepals and petals and a bright purple lip; Cattleya Madame Leten, a pure-white flower resulting from the crossing of albino varieties of intertexta and labiata; and Slc. Ibabella of rose-pink colour. The Odontoglossums included fine forms of Lilian, carrying no less than 27 fully-developed flowers, and O. amabile, with a spike of 10 large blooms. A pretty Odontioda was seen in Charlesworthii cuprea, with flowers of copper colour, and another in Oda. Madeline. Lycaste Mary Gratrix, with a richly-coloured flower, and some showy plants of Phalænopsis Rimestadiana were in prominent places. Along the back were to be seen robust plants of Oncidium splendidum and various

Cymbidiums. Calanthes included the beautiful pure-white Harrisii, and Stella, the latter carrying a spike of 15 rose-coloured flowers.

Messrs. Sanders received a Silver Flora Medal for a group of interesting species and hybrids. Among the former were numerous Masdevallias, of which gargantua and polysticta were very well flowered. Epidendrum polybulbon album with numerous flowers, Oncidium bicallosum with showy spikes of golden-yellow blooms, and the rare Oncidium Suttonii came in for appreciation. Natural hybrids were seen in Odontoglossum Humeanum and O. Duvivierianum, and garden raised ones in Cattleya Intertexta var. Juliettiæ and Cymbidium Doris. A curious result was seen in Lc. Flamboyant, having yellowish-green sepals, but bright purplish petals and lip. Numerous Cypripediums were staged, including the new Yellow Hammer (San-Actæus × Fairrieanum). A pleasing centre piece was made of the elegant Odontonia brugensis, on either side of which were fine varieties of Brassocattleya Crofutiana.

Messrs. Stuart Low & Co. obtained a Silver Flora Medal for an extensive group, containing well grown plants of Cypripedium Maudiæ, and the new Cypripedium Lawrie (Aisne × Dicksonianum), the large dorsal, of which is heavily spotted. Among the Læliocattleyas were fine varieties of Schrœderæ and luminosa aurea, while Slc. Isabella carried a couple of medium-sized flowers remarkable for their bright rose-pink colour and ruby velvet area of colour on the lip. Odontioda Wilsonii and Oda. Bohnhofiæ carried brightly coloured blooms, while touches of scarlet were seen in Sc. Doris. In the centre was a fine example of Vanda cœrulea, and just below it a good form of Brassocattleya Ruby.

Messrs. Cowan & Co., received a Silver Flora Medal for a neat exhibit of the finest Cypripedium hybrids, including Becktoniæ, Vashtii, and the pretty Helen II. The Læliocattleyas included the recently raised Dodona, and a fine variety of Schrœderæ. Several elegant varieties of Cattleya Tityus, as well as of Octave Doin came in for a large measure of appreciation. In the centre was Odontoglossum Queen Alexandra, with a tall spike of sixteen flowers. Three richly-coloured varieties of Cattleya Ultor made a fine contrast with some albino hybrids. Along the back row were good examples of Od. Ravenwood (crispum × formosum) and Cymbidium Doris.

Messrs. J. & A. McBean obtained a Silver Banksian Medal for a group of choice hybrids. The central area was occupied by a plant of Cymbidium Schlegelii, which, although not large, carried six spikes with a total of thirty-eight flowers. Cattleya H. S. Leon bore seven well-developed flowers, and C. Enid alba was equally well cultivated. Among the Odontoglossums was Miguelito, almost entirely rich purple colour, while O. Aquila bore a neat and round flower of much promise. Brassolæliocattleyas were repre-

sented by Cissie and Thais, the latter of an unusual buff-yellow colour in all the segments.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), exhibited Odontioda Brackenhurst, with six flowers of chocolate-red colour, also Dendrobium tetragonum, with several spikes of bloom, and a Dendrobium species requiring identification.

A. M. Gentle, Esq., The Capstan, St. Albans, exhibited Cypripedium Edith Gentle, with a broad dorsal sepal showing rose suffusion, the wide petals veined with mahogany, and having a shining nature. Also Cypripedium Capstan Gem, a pleasing hybrid of greenish ground colour and light brown shading.

R. Gerrish, Esq., Milford, Salisbury (gr. Mr. W. Sorrell), staged Odontoglossum crispum, Gerrish's variety, a handsome variety carrying a spike of eleven flowers, the segments broad, rose-tinted and effectively blotched.

G. W. Bird, Esq., Manor House, West Wickham, Kent (gr. Mr. H. Redden), exhibited Odontioda Rufus secundus, a splendid result in which the three flowers had all the segments of round formation, of reddish-brown colour, stained with a darker tint on the margins.

Pantia Ralli, Esq., exhibited Cattleya Trianæ var. Col. H. Carlisle, a beautiful form, with round up-standing petals, entirely white in all the segments, except for a small rose-coloured blotch on the front lobe of the lip; also Odontoglossum Freckles, with a couple of flowers prettily spotted with lemon-yellow.

MANCHESTER ORCHID SOCIETY.

December 7th, 1922.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, H. Astley Bell, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, A. T. Cussons, D. A. Cowan, J. C. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Britain's Monarch (Alcibiades × Earl of Tankerville), a flower of perfect shape, dorsal sepal white with green base covered with red spots; Cypripedium The Chancellor, a flower of the Christopher Grand Duke Nicholas type, but larger and finer in the colour markings; Cypripedium Minotaur, flat dorsal, white with reddish spots, the green base having black spots; from S. Gratrix, Esq.

Odontoglossum Llewellyn var. Radiant, one of the largest and most

highly coloured varieties; Cypripedium Moonlight var. delicatum, large flat dorsal, white, with a greenish yellow base; from Mrs. Gratrix.

Eulophiella Rolfei, very fine deep-pink flowers with the inside of lip white; from B. J. Beckton, Esq.

Cypripedium Monialis var. Hilda Sharp, the finest Niobe hybrid yet seen, large flat dorsal of claret colour, with white margin, petals and pouch deep brown; from the Rev. J, Crombleholme.

Odontoglossum crispum var. Fred. Hardy, very fine shaped flower, heavily blotched with purplish red; from Fred. Hardy, Esq.

Cypripedium Godefroyæ splendens, one of the finest varieties, beautifully marked, pouch pure white: from P. Smith, Esq.

AWARDS OF MERIT.

Calanthe Glad Eye (Bryan × rubro-oculata), Calanthe revertens, and Cypripedium Torelor, Beckton's var.; from B. J. Beckton, Esq.

Cypripedium Cappa-magna var. Victoria, Cypripedium Othello St. Marys var., and Cypripedium Fureus (Leeanum × Beeckmanii); from the Rev. J. Crombleholme.

Cypripedium Troilus var. Jupiter, Odontioda Antinea and Læliocattleya Britannia var. Plumosa; from P. Smith, Esq.

Cypripedium Lord Wolmer, Westonbirt var., and Cypripedium Lady Grey; from P. Smith, Esq.

Cypripedium Sir H. Rawlinson, Chardwar var., and Cypripedium Nydia, Westonbirt var.; from Dr. Craven Moore.

Cypripedium Kervalli, and Cymbidium Mastersii, Cussons' var.; from A. T. Cussons, Esq.

Cypripedium Chorltonville, and Cyp. Alethea; from S. Gratrix, Esq.

Odontoglossum Ardendora var. Radiance; from A. Hanmer, Esq

Cypripedium Chrysostens, Usk Priory var.; from Messrs. J. Cypher & Sons.

Odontoglossum Florence (Rolfeæ × Rosalind); from Messrs. Mansell & Hatcher.

Cypripedium Emerald (Curtisii Sanderæ × Maudiæ); from Messrs. Sanders.

AWARD OF APPRECIATION.

Odontoglossum crispum Minotaur; from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

Mr. C. Branch for Odontoglossum crispum Fred. Hardy, and Mr. W. A. Stewart for Calanthes.

GROUPS.

Gold Medals were awarded to S. Gratrix, Esq., and B. J. Beckton, Esq. Large Silver-gilt Medals to Mrs. Bruce and Miss Wrigley, and A. Hanmer, Esq. Large Silver Medals to the Rev. J. Crombleholme and

A. T. Cussons, Esq. For Trade groups, Silver-gilt Medals were awarded to Messrs. Charlesworth & Co., Messrs. Cowan & Co., and Messrs. Cypher & Sons. A Large Silver Medal to Messrs. Mansell & Hatcher, and to Mr. D. McLeod. A Silver Medal to Messrs. Keeling & Sons.

Messrs. Armstrong & Brown exhibited a flower of the wonderful Odontoglossum Armstrongii var. Aureola, a Complimentary Commendation being awarded.

December 21st, 1922.

Members of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Coningsby, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Christopher var. Grand Monarch, a fine flower, more densely spotted than the original; Cypripedium Eurybiades var. The King, of perfect shape and with a wide white margin to the dorsal sepal, petals mahogany colour; Cypripedium Matthewsianum, Usk Priory var., flower of good shape and colour; from S. Gratrix, Esq.

Cattleya Enid alba, Bletchley Park var., very fine flower, with broad white petals and rich rose-purple lip; from Sir H. Leon, Bart.

Odontoglossum crispo-Solon, Pitt's var., large handsome flower, rich purple blotches with a margin of clear white; from H. T. Pitt, Esq.

AWARDS OF MERIT.

Cypripedium Mandarin (Shogun × Earl of Tankerville); from Mrs. Gratrix.

Cypripedium Noel (Becktoniæ × Nirvana); from Dr. Craven Moore.

Cypripedium Swallow (Swallowtail × Satyr); from Capt. W. Horridge.

Cypripedium Helena (Shogun × aureum); from S. Gratrix, Esq.

Cypripedium Statul (Clinkaberryanum × Mrs. Carey Batten); from Col. Sir J. Rutherford, Bart.

CULTURAL CERTIFICATE.

Mr. J. Howes, for Odontoglossum ardentissimum var. Bright Eyes.

GROUPS.

A Gold Medal was awarded to S. Gratrix, Esq.; a Large Silver Medal to A. T. Cussons, Esq.; and a Silver Medal to Messrs. Sanders.

January 4th, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, A. G. Ellwood,

J. Evans, W. Giles, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Witham, H. Arthur (secretary), and S. W. Flory (visitor).

FIRST-CLASS CERTIFICATES.

Calanthe Angela, Beckton's var., flowers of excellent shape and highly coloured; Cypripedium Emerald, Beckton's var., a beautiful flower of perfect form, the result of crossing Maudiæ and Curtisii Sanderæ; from B. J. Beckton, Esq.

Cypripedium Mrs. Rickard var. Mercia, a fine flower with the large dorsal sepal richly spotted; from S. Gratrix, Esq.

Odontioda Colinge var. Admiral, of excellent shape, richly blotched and spotted; from A. Hanmer, Esq.

Odontonia Merope, Bolholt var. (M. Bleuana × Od. illustrissimum), a lovely variety, flower large, of fine shape, white with purple blotches on petals and base of lip; from Capt. W. Horridge.

Læliocattleya Dodona var. Ashiæ, flower of neat form, rich orange and bronze colour, lip very dark; from P. Smith, Esq.

AWARDS OF MERIT.

Cypripedium Christopher bisepalum; Cyp. Nydia rubellum; Cyp. Yuletide; Cyp. Golden Sunset; from S. Gratrix, Esq.

Cypripedium Nellie Pitt; Cyp. Pixie var. rubrum; from Mrs. Gratrix.

Calanthe Bryan alba, Beckton's var.; Cypripedium Trentino; from B. J. Beckton, Esq.

Odontioda Eurydice, Bolholt var. (M. Bleuana × Od. Aireworth), from Captain W. Horridge.

Cypripedium Cynosure (Leeanum × Minos); Saccolabium bellinum, Haddon House var.; from P. Smith, Esq.

Cypripedium Olympus var. Diadem (Leeanum × Alcibiades); from Dr. Craven Moore.

Cypripedium Mrs. Giles (aureum × Lady Dillon); from A. Hanmer, Esq.

AWARDS OF APPRECIATION.

Odondioda Redbreast; from Mrs. Gratrix. Cyp. Bolœus; from P. Smith, Esq.

CULTURAL CERTIFICATE.

Mr. W. A. Stewart, for Calanthes.

GROUPS.

Gold Medals were awarded to S. Gratrix, Esq., for an exhibit of Cypripediums in great variety; and to B. J. Beckton, Esq., for a group in which Calanthes were a special feature.

Silver Medals were awarded to A. Hanmer, Esq., for a fine collection of Cypripedium, Odontoglossum hybrids and Odontiodas; and to Messrs. Cypher & Sons for a group of Cypripediums and Masdevallias.

January 18th, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, J. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Witham, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Nesta II. (mirum × Lord Woolmer), a magnificent variety of perfect shape, the very large dorsal sepal prettily spotted with claret-red; from E. D. Bostock, Esq.

Odontioda Pegasus (Od. amabile × Oda. Madeline), a large flower of unique colouring; from Mrs. Gratrix.

Cypripedium Imperator var. Excelsior (Alcibiades × Pyramus), a noble flower, the broad dorsal sepal of reddish-brown colour margined with white; from S. Gratrix, Esq.

Miltonioda Harwoodii, Bolholt var., the finest form of this hybrid yet seen, flowers of perfect shape, and reddish-scarlet in colour; from Capt. W. Horridge.

Cattleya Clotho perfecta (Enid × Trianæ), a splendid variety, of excellent formation, sepals and petals of uniform colour, the lip darker; Brassocattleya British Queen var. Excelsior, an immense flower of fine form, sepals and petals deep mauve, lip richer, and with a golden throat; from Messrs. Cowan & Co.

AWARDS OF MERIT.

Cypripedium Florence Spencer; Cyp. Olympus var. Rose; and Odontoglossum Fabia var. Royal Beauty; from S. Gratrix, Esq.

Lycaste Skinneri var. Robin; Cyp. Mario var. Jean Walker; from Mrs. Bruce and Miss Wrigley.

AWARD OF APPRECIATION.

Odontoglossum Cordoba var. Adula (eximium × Doris); from Mrs. Gratrix.

CULTURAL CERTIFICATES.

Dr. R. N. Hartley, for Oncidium Forbesii; Mr. A. Burns, for Lycaste Skinneri; Mr. J. Howes, for Od. crispum.

GROUPS.

A Gold Medal was awarded to S. Gratrix, Esq., for a splendid group of Cypripediums; Silver Medals were granted to Mrs. Bruce and Miss Wrigley for an excellent exhibit of Lycastes of the Skinneri section, and to Messrs. Cypher and Sons for Cypripediums and Calanthes.

Other exhibitors included Messrs. Cowan & Co., Messrs Keeling & Son, who staged Bulbophyllum Dayanum and Cœlogyne Mooreana, and Messrs. Charlesworth & Co., the latter exhibiting Blc. Camada.

THE ORCHID REVIEW.

VOL. XXXI.] MARCH, 1923. [No. 357.

NOTES.

R.H.S. ORCHID COMMITTEE.—It is a matter of regret to everyone that the name of Sir Harry J. Veitch no longer appears as one of the Vice-chairmen of the R.H.S. Orchid Committee. This is on account of his retirement from active work. However, we note with pleasure that he still holds the position of one of the Society's Vice-Presidents. The Rev. J. Crombleholme and Mr. J. T. Barker are not new to the Committee, although their names now appear for the first time in the official list. We note with pleasure the return of Mr. G. F. Moore, a well-known amateur, who served from 1902 until 1919, when ill-health caused his temporary retirement. The only new member is Mr. H. H. Smith, of Messrs. Charlesworth & Co. Mr. Gurney Wilson has been appointed Assistant Secretary, and the collection of Orchid paintings, now numbering 2,800, has been placed under his special care. The attendances of the various members is recorded, a system that may encourage more regular attendance, but one or two inaccuracies occur in the figures given; one well-known amateur who has turned up on at least two occasions has an o placed before his name, while another member who does not appear to have attended at all is credited with 5.

DENDROBIUM PHALÆNOPSIS.—On the first page of our January number we commented on the difficulty experienced in obtaining seed of Dendrobium Phalænopsis, and enquired if any of our readers had been successful. This has brought the following information from Mr. Theodore L. Mead, of Oviedo, Florida, U.S.A., who writes:—"I note the mention of failure to obtain good seeds from *Dendrobium* Phalænopsis. In 1896-7 I made many crosses on this species, most of them failures, but I got fat seeds from it when crossed with D. bigibbum, also when fertilised with pollen of its own kind, and with a variety having lined and bearded petals, as well as with a light variety. The D. bigibbum cross was made in November and the seed ripened in the following June, the other three flowers were fertilised in October and the seed also ripened in June. I got no seeds from this species when crossed in the spring. But D. veratrifolium

crossed with D. Phalænopsis on May 20th had two pods that were ripe on August 25th; the seeds were good and a few small plants were obtained. I was not having much success in raising Orchid seed at that time, as the midge maggots got most of the seeds that started, so I had no plants to show for my trouble. However, I got good seeds on D. veratrifolium with the pollen of D. Farmeri, D. chryseum, and D. Pierardi, besides D. Phalænopsis, and it might be worth while to experiment further if the species is still available. Its pods ripen in three or four months. I also note the remark that Odontoglossums may probably not be amenable to tube culture on sterilised agar jelly. One should not judge as to this from experiments here, as the summer climate of most of the United States is too hot for this genus, and seeds are rarely if ever available with us.

ORCHIDACEÆ QUÆDAM AMERICANÆ.—In our January issue we referred to the first part of Schedulæ Orchidianæ, by Prof. Oakes Ames, and now No. 2 of this useful work is before us. Like the former, it is devoted to Orchidaceæ Quædam Americanæ. Undoubtedly the most interesting portion is that devoted to Selenipedium chica, the tallest Orchid known to science, and referred to on another page of our present issue. The new species described are members of the genera Pelexia, Sarcoglottis, Stelis, Pleurothallis, Lepanthes, Epidendrum, Maxillaria and Ornithidium. Prof. Ames says he has so far failed to find justification for the new genus Brachystele formed by Dr. Schlechter for a section of Spiranthes. By reliance on slight differences discernible in the structure of the gynostemium, but not always clear, and not always correlated with a second constant character, the latter authority admitted twenty-four genera in his recent revision of the Spiranthinæ. Prof. Ames, however, remarks: "That such a goodly number of heretofore unrecognised genera should exist in a group that has been extensively investigated by capable systematists, would indicate that deep-seated characters of value for taxonomic purposes have been previously neglected, disregarded, or overlooked." Concerning Brachystele aguacatensis, of which the structure of the lip is essentially that of Euspiranthes, Prof. Ames states that "although the lateral sepals are distinctly coherent at base and decurrent on the ovary to form a small sac, this cohesion is simply a matter of degree. If for generic segregation reliance is placed on a peculiarity of the gynostemium correlated with a tendency towards cohesion of the lateral sepals, a character that attains its highest development in such genera as Sarcoglottis and Stenorhynchus, the risk is run of establishing genera which depend for recognition on a recondite character of the gynostemium. This seems hardly worth while if we hope to keep genera within the capacity to understand of those who identify plants."

ORCHIDS OF AUSTRALIA AND NEW ZEALAND.

WE are pleased to note that further "Contributions to the Orchidology of Australia and New Zealand," by Dr. R. S. Rogers, M.A., have been published (*Trans. Roy. Soc. S. Austr.*, vol. xlvi., pp. 148-159). The new species described include Diuris brevifolia, a plant that has long been confused with D. sulphurea, which it superficially resembles, but from which it differs in its short setaceous and relatively numerous leaves, in its much smaller flowers, and in its labellum, which is at least as long as the dorsal sepal, and bears two raised longitudinal lines. Prasophyllum Brainei, named after Mr. A. B. Braine, an ardent collector and student of Victorian Orchids, approaches the green forms of P. fuscum, but materially differs from it in the much less complicated structure of the labellum and shorter lateral appendages of the latter.

Pterostylis humilis was collected by Mr. H. B. Matthews, who states that his specimens were removed from their natural habitat near the base of Ruapehu, within three miles of perpetual snow, and cultivated in Auckland, 200 miles north of their native locality. He thinks that the change to abnormal conditions may have produced a dwarfed growth in the plant. Dr. Rogers remarks that "it is probable that the scape becomes elongated after pollination, so as to assist in the maturation of the fruit, as happens in the case of many Australian Orchids, notably in the genus Corysanthes. On the other hand, it must be remembered, that in certain other species of the genus, dwarfed specimens are by no means infrequent. This is particularly true of C. cucullata, where dwarf forms are often to be found growing side by side with normal plants. These show such a departure from the type that even experienced botanists like Sir J. D. Hooker and Robert Brown fell into error and described them as separate species."

Caladenia pumila, a new species, is a very hairy plant of low stature. It differs from C. Patersoni principally in its dwarfed habit, in the absence of tentacles to the perianth and segments, and in the absence of definite glandular tips to those segments. Prasophyllum Frenchii var. Tadgellianum and P. australe var. viscidum are described as new varieties, as also is Caladenia carnea var. aurantiaca, in which the contrasting colours give this dainty little species a very characteristic appearance and charm.

Interesting notes are given regarding Dendrobium dicuphum, Spiranthes australis, and Thelymitra longifolia, the latter representing not only the highest elevation, but also the furthest north at which any Orchids have been recorded in S. Australia. Thelmitra urnalis was described in 1882, but has never been reported since its discovery until 1921, when it was found by Dr. and Mrs. Rogers. It may possibly be a hybrid of T. antennifera.

The remains of a Corysanthes flower enabled Dr. Rogers to only identify the genus. The plants were sent from a Victorian locality, and proved of interest because they showed how the pedicel, which is almost sessile during the flowering season, becomes enormously elongated in order that the seed capsule may receive the benefit of wind and sun in the process of maturation. Dr. Rogers adds that members of this genus propagate chiefly by the vegetable method, and such specimens as these are rarely found.

ORCHIDS AT NAUGATUCK, CONN., U.S.A.

THERE are many interesting Orchids in Mrs. B. B. Tuttle's garden at Naugatuck, Conn., U.S.A. They are cultivated by Mr. M. J. Pope, who writes: This is the time when the greenhouses look gay with flowers. Here the Phalænopses are again making a grand show, which they have done every season since 1905. About 300 plants, mostly P. Aphrodite, a few P. Schilleriana, P. Stuartiana, P. Lueddemanniana, P. leucorrhoda, and P. amabilis. Since these plants were purchased in 1904, I have only lost one each of P. rosea and P. amethystina. Of P. Aphrodite and P. Schilleriana I have unfortunately lost several, but of late years very few plants have died as I grow them cooler and hardier than in former times. After all, there seems to be no better compost for them than good living sphagnum moss. Apart from the Phalænopses, there are several hundreds of other species and varieties, making a total of about 1500 Orchids, besides a general run of ordinary stove and greenhouse plants. At the present time, the middle of January, there are in flower Angræcum sesquipedale, A. eburneum, Bulbophyllum Medusæ, another known as the Windmill Orchid, the tall Neobenthamia gracilis, Epiphronitis Veitchii, several Masdevallias, including tovarensis, Veitchiana, and ignea, Lælia anceps in variety, fine forms of Odontoglossum crispum, some choice varieties of Cattleya Trianæ, and many Cypripediums. We have Læliocattleya Cinnomax (L. cinnabarina × C. maxima), which was raised by Mr. E. O. Orpet. It is appreciated very much on account of its peculiar salmon colour. While the flowers are not large, they are very decorative, being produced from eight to fifteen on a stem.

DISA CORNUTA.—An erect robust plant, with the stem straight, stout and leafy, spike cylindrical, closely many-flowered. The odd sepal somewhat helmet-shaped and produced into a spreading deflexed spur. It is one of the commonest Orchids in the neighbourhood of those suburbs of Cape Town which are on the eastern side of Table Mountain. It is most easily found during the month of October, and becomes less common when travelling further eastward.

SELENIPEDIUM CHICA: THE TALLEST ORCHID KNOWN TO SCIENCE.

MUCH doubt has surrounded Selenipedium chica ever since it was described and figured by Reichenbach in 1854. Now, thanks to the painstaking investigations of Prof. Oakes Ames, our knowledge of this extraordinary Orchid is considerably extended, for, in *Schedulæ Orchidianæ*, No. 2 (1923), he gives a full description of it, accompanied by an excellent plate.

Specimens of this Selenipedium were first obtained by Duchassaing, who secured them from an Indian chief in the mountains of Panama, where this species was said to be known as "Vanilla en Arbol," because a flavouring material resembling Vanilla was obtained from its fruits. Prof. Oakes Ames says he is "indebted to Mr. C. W. Powell for data which remove all doubt as to the authenticity of the records of the height to which Selenipedium chica grows. It will be remembered that Duchassaing's specimens were said to be from twelve to fifteen feet high. Powell describes his specimens as being ten to twelve feet high, with branches along the upper part of the stems. In other words, Selenipedium chica is the tallest Orchid known to science."

The accompanying plate includes a diagrammatic suggestion of the height of the plant: it shows an erect reed-like stem, about twelve feet in height, bearing leaves from almost its base to the apex, at which point the inflorescence of twenty or more flowers and buds is borne. The flowering period is a long one, as both fruits and buds are present simultaneously. Further, only one or two flowers expand at a time. M. Powell found the plants in November, 1922, in the Canal Zone, Panama, growing in semi-shade in damp, cool places at an elevation of 200-300 feet. The flowers opened in succession, and, if not pollinated the first day, fell off at nightfall. Five years previously specimens had been obtained by Mr. Ellsworth P. Killip, on Ancon Hill, Panama.

When Prof. Ames examined the specimens of Selenipedium in the Reichenbachian Herbarium at Vienna, he was unable to find the type of Selenipedium chica. The only record being a duplicate of the plate published in Xenia Orchidacea, and from this, which is, he fears, a bit enhanced by the imagination of its maker, the conclusion was arrived at that the flowers observed were merely expanding buds, those represented on nearly mature capsules having been restored from the remains of withered flowers.

CHELSEA FLOWER SHOW.—This important event will be held on May 29th, 30th and 31st, 1923. Fellows will be admitted at 12 o'clock on the first day.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Lawrie	Bc. Marg. Fournier × C. Octave Doin ...	Stuart Low.
Brassolælio-attleya Strathmore ...	Lc. Nella × Bc. Mrs. J. Leemann	Stuart Low.
Brassolæliocattleya Thais	C. Trianæ × Blc. Joan	McBean.
Calanthe Stella	Ruby × Kewensis	Charlesworth.
Cattleya Edithiæ	Suzanne Hye × Trianæ	Pauwels.
Cattleya Helvetia	Suzanne Hye × Lady Veitch	Sanders.
Cattleya Ingenieur Reyband ...	Comet × Hardyana	Mons. Marcoz.
Cattleya Linda	Cowaniæ × Lady Veitch	Cowan.
Cattleya Madame A. Lecler	Alfred Fowler × Warscewiczii	Mons. Marcoz.
Cattleya Octho	Octave Doin × Clotho	Stuart Low.
Cattleya Petrone	Andromaqae × labiata	Mons. J. Potin.
Cymbidium Doreen	Pauwelsii × Doris	McBean.
Cymbidium Muriel	giganteum × Alexanderi	Cowan.
Cymbidium Radiant	I'Ansonii × erythrostylum	Armstrong & Brown.
Cypripedium Baron Bultel	Gaston Bultel × The Baron	G. F. Moore, Esq.
Cypripedium Bolœus	Actaeus × Boltonii	P. Smith, Esq.
Cypripedium Capstone Gem ...	Arthurianum × aureum	A. M. Gentle, Esq.
Cypripedium Chloris	Mrs. H. Jenkins × Lord Wolmer	Flory & Black.
Cypripedium Doris Stanton ...	Goliath × Pyramus	G. F. Moore, Fsq.
Cypripedium Edith Gentle	Boadicea × Mrs. W. Mostyn	A. M. Gentle, Esq.
Cypripedium Fascination II. ...	Ceres × Beeckmannii	G. F. Moore, Esq.
Cypripedium Golden Sunset ...	Leeanum × Moonlight	S. Gratrix, Esq.
Cypripedium Gwen Hanmer ...	Christopher × Florence Spencer	G. F. Moore, Esq.
Cypripedium Lady Bultel	Gaston Bultel × Lady Dillon	G. F. Moore. Esq.
Cypripedium Lawrie	Dicksonianum × Aisne	Stuart Low.
Cypripedium Luxor	Leeanum × Minos	Mrs. Bruce & Miss Wrigley
Cypripedium Maisie	Rickardsiæ × Mrs. H. Jenkins	Flory & Black.
Cypripedium Memoria H. J. Elwes ...	Satyr × Christopher	G. F. Moore, Esq.
Cypripedium Miss Lily Kinnaird ...	Goliath × Troilus	G. F. Moore, Esq.
Cypripedium Mrs. Eley	Christopher × Warrior	G. F. Moore, Esq.
Cypripedium Mrs. Giles	Lady Dillon × aureum	A. Hanmer, Esq.
Cypripedium Nesta II.	Eurybiades × Lord Wolmer	E D Bostock, Esq.
Cypripedium Trentino	Cavalier × Leeanum	B. J. Beckton, Esq.
Cypripedium Yellow Hammer ...	Fairrieanum × San-actæus	Sanders.
Cypripedium Zenota	Zeno × Earl of Tankerville	Mrs. Bruce & Miss Wrigley
Læliocattleya Britannica	Lc. Britannia × L. purpurata	Sanders.
Læliocattleya Cavatina	Lc. Bryan × L. Cowanii	Mrs. Bruce & Miss Wrigley
Læliocattleya Cuderæ	Lc. Cupid × C. Shrœderæ	Sanders.
Læliocattleya Emile Tilkin	C. Gudrun × Lc. Bella	C. Sladden.
Læliocattleya Intermezzo	C. intermedia × L. Cowanii	Mrs. Bruce & Miss Wrigley
Læliocattleya Pasteur	C. Maggie Raphael × Lc. callistoglossa ...	Mons. Marcoz.
Læliocattleya rubrochila	Lc. Isabel Sander × Lc. Canhamiana ...	Sanders.
Læliocattleya Secretaire Grapin ...	C. amabilis × Lc. Wellesleyi	Mons. Belin.
Læliocattleya Yokohama	C. Blackii × L. Cowanii	Mrs. Bruce & Miss Wrigley
Odontioda Zygus	Oda. Zephyr × O. ardentissimum ...	C. J. Lucas, Esq.
Odontoglossum Audrey	eximillus × percultum	Pantia Ralli, Esq.
Odontoglossum Aquila	ardentissimum × l'Empereur	McBean.
Odontoglossum Elizabeth	crispum × Lambardeanum	Sir J. Colman, Bart.
Odontoglossum J. H. Knight ...	eximium × eximilius	Cowan.
Odontoglossum St. Emilion ...	eximillus × St. James	Pantia Ralli, Esq.
Odontoglossum Strathmore	Apollo × Hylandianum	Armstrong & Brown.
Sophrocattleya Jean	C. Iris × Sc. Thwaitesii	R. G. Thwaites, Esq.
Sophrocattleya Rupert	C. Maggie Raphael × Sc. Roupelliana ...	R. G Thwaites, Esq.
Sophrolæliocattleya Osmondii ...	S. grandiflora × Lc. Wrigleyi	Mrs. Bruce & Miss Wrigley
Wilsonara Deception	Oda. Charlesworthii × On. macranthum ...	Sanders,
Wilsonara Wendy	O. Lambeauianum × Oncidioda Cooksoniæ	Charlesworth.

THE CAPACITY OF ORCHIDS TO SURVIVE IN THE STRUGGLE FOR EXISTENCE.

By J. RAMSBOTTOM, M.A., F.L.S.

ONE had expected that the stimulating paper by Mr. Oakes Ames in the *Orchid Review* for August 1922 (Vol. xxx, pp. 229-234) entitled "Observations on the capacity of Orchids to survive in the struggle for existence," would have given rise to some discussion. In the present note two of the matters treated by Mr. Ames will be discussed (1) the significance of the term "decadence" when applied to Orchids and (2) the manner in which Orchids reached the island of Krakatau after the volcanic eruption.

(1). Many botanists, for one reason or another, have regarded the Orchidaceæ as a decadent group of plants. Mr. Ames controverts this idea, but does not state it in a form that would meet with the approval of many of its upholders. Dispensing with quotations in order not to give too controversial a flavour to this slight note we may consider the matter from a somewhat different standpoint. Taking the usual definition of "decadence" *e.g.*, that of the "New English Dictionary": "The process of falling away or declining (from a prior state of excellence, vitality, prosperity, etc.); decay, impaired or deteriorated condition," can we apply this in any way to Orchids? To most of the readers of this periodical who are interested in the flowers of Orchids it savours of the ridiculous to regard the wonderful array of cultivated forms as decadent, though the term would willingly be used for such a saprophytic species as our native *Neottia Nidus-avis*. Apart altogether from colour, and regarded purely from a botanical standpoint, the Orchid flower is replete with numerous and strange devices to achieve pollination, the sole object of the structure. Here again degeneracy is a ridiculous term to apply to such highly organised structures. When, however, we consider the vegetative parts of the plant and the seeds, we are on different ground. Fungus-mycelium, apparently invariably occurs in the roots of Orchids, and, so far as we know at present, the flowering plant is unable to grow under natural conditions unless the mycelium is present. The fact that the Orchid has been able to turn what was probably in its origin a parasitic attack into one of subservience, is doubtless a great accomplishment on its part, but as a *flowering plant* it theoretically has ceased to exist. To carry the matter further. The production of a large number of seeds is usually regarded as a sign of lowness of organization in that it is found in more primitive groups where adaptations for securing adequate germination are lacking. In the case of Orchids the immense quantity of seeds produced is, however, probably not so to be regarded, but as an adaptation to the special needs of germination. This process is, of

course, dependant in nature upon inoculation by the fungus which occurs in the roots. Under ordinary conditions, so far as we know, a seed is unable to germinate successfully, *i.e.*, give rise to a fully established seedling, without the aid of the fungus. As far as most Orchids are concerned the fungus is held completely in check and all its activities appear beneficial. How are we to regard an Orchid? It is certainly highly evolved, but the development is along the line of symbiosis, and not along that of independence. Considered as a flowering plant, the Orchid is certainly degenerate in that its seeds are unable to germinate, nor is it able to continue its development autonomously. In fact, it might well be argued that an Orchid is not a flowering plant at all, but a dual organism consisting of phanerogam and fungus—only when a green Orchid is in a resting condition is the fungus absent. What we have to bear in mind in using such terms as decadence is the line of development we are studying. All organisms must be adapted to their mode of life and the fact that they exist proves that they are at least successful in some degree. High specialisation may even be regarded as degeneracy in that the particular conditions to which the organism is attuned will be difficult of attainment. The prize specimens in our agricultural (and even horticultural) shows would rarely receive Nature's First-class Certificate.

(2). It is, however, with Mr. Ames' theory as to how Orchids reached Krakatau that I wish principally to deal, as the matter is one to which I had previously given some consideration and had arrived at a different conclusion. The theory is that the seeds, before reaching Krakatau, "were previously supplied with mycorrhizal fungus." One statement in Mr. Ames' article to which exception must be taken is that "the mycorrhizal fungus is not known to occur as an autonomous organism comparable to an omnipotent mould." The fungus certainly does occur apart from the Orchid plant, as a consideration of the manner in which seeds and roots become infected clearly shows. Moreover, it can be isolated from the soil of pots in which Orchids have grown, and also from soil in the neighbourhood of our native Orchids. Further, there is not the slightest difficulty in growing it in pure culture, a state of affairs which of itself indicates that the fungus is capable of an autonomous existence.

"The distance of the Krakatau islands from the coasts of Java and Sumatra . . . . is comparatively trifling. The island of Sebesi, which was only partially deprived of its vegetation by the eruption of 1883, is only 19 km. (12 miles) from Krakatau, and only about 15 km. (9 miles) from Verlaten and Lang Islands. The distance of Krakatau from Seboekoe is only slightly greater. To the nearest points of the coast of Sumatra, Telong Kelapa and Varkenshoek, the distance is 37 and 40 km. (23 and 25 miles). To Java's Third Point the distance is approximately the same; and to the

northern point of Prince Island it is 43 km. (27 miles)."* A consideration of the data given for ocean currents and for winds shows that these are abundantly sufficient to enable the comparatively short distances to be travelled by seeds in a viable condition.

The five species of Orchids which have so far been recorded from Krakatau are: *Arundina speciosa* Bl., *Cymbidium Finlaysonianum* Lindl., *Phajus* sp., *Spathoglottis plicata* Bl., and *Vanda Sulingi* Bl. We have thus to account for both terrestrial and epiphytic species. Although it is probable that distribution by wind has been responsible for the occurrence of both types, it is quite possible that epiphytic species were brought indirectly by ocean currents. "Inundations and high tides on the coast [of neighbouring lands] and, in the interior, swollen rivers frequently carry freshly uprooted trees into the sea. The earth entangled in the mass of root above the surface of the water may contain various seedlings and seeds . . .; epiphytes on the branches of the floating trees are out of reach of the injurious effects of sea-water." "Tree stems and branches played an important part in the colonisation of Krakatau by plants and animals. Large piles of floating trees, stems, branches and bamboos are met with everywhere on the beach above high-water mark and often carried a considerable distance inland. Some of the animals on the island, such as the fat Iguana (*Varanus Salvator*) which suns itself in the beds of streams, may have travelled on floating wood, possibly also the ancestors of the numerous ants, but certainly plants." It might even be that terrestial species were carried in the soil of the root mass of uprooted trees, but it is more likely that in each case the mode of distribution was the normal one met with in the group, *i.e.*, wind dispersal. The extraordinary lightness of the seeds enables them readily to be carried by wind, and it is probable that the fungus is carried in the form of sclerotia. These compact masses of mycelium, which occur practically in all the mycorrhizal fungi of Orchids so far studied are quite minute, and far lighter than the vast majority of seeds. "Very light seeds specially adapted to wind dispersal, such as those of Orchids, the spores of Ferns and other cryptograms, are carried by the ordinary monsoon wind, while the introduction of larger and heavier seeds, some of which have no special flight-organs, is the result of more violent storms and cyclones." Thus there is apparently not the slightest difficulty in accounting for the presence of both Orchid seed and fungus on Krakatau by wind dispersal. The meeting of the two is apparently always fortuitous wherever it occurs in chlorophyllaceous Orchids.

That this is a reasonable theory is seen from a consideration of certain

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* This and the following extracts are from "The new flora of the volcanic island of Krakatau," by A. Ernst. English translation by A. C. Seward, University Press, Cambridge (1908).

other constituents of the present flora of Krakatau. *Lycopodium cernuum* L., and *Ophioglossum moluccanum* Schlecht., are both recorded for the island. Since these Pteridophyta have mycorrhizal fungi in their saprophytic subterranean prothalli, and since all the facts point to the relation between the two organism sbeing obligate, we are again faced with the same problem. It is more unlikely here even than in Orchids that inoculation has taken place before dissemination.

The Leguminosæ on the island possibly present the clearest case of the separate arrival of the symbiotic organisms. As is well known practically all members of this family show on their roots tubercles which enclose masses of bacteria. "On the roots of all the Leguminous plants examined, *Vigna*, *Canavalia*, *Erythrina*, I found the charactistic root-tubercles in abundance." It is incredible that seedlings of these plants had their roots inoculated with bacteria and were then blown over.

It is extremely probable that at the present time the soil of Krakatau is, from a biological point of view, very similar to what it was before the eruption. Treub, in his first visit in 1886, three years after the eruption, found pioneers of vegetation from the shore to the peak; blue-green Algæ were the first colonists on the pumice and the volcanic ash, as also on the exposed blocks of rock in the ravines on the mountain slopes. The second visit in 1897 showed that diatoms were also present. Ernst, in 1906, found bacteria and moulds. "The Bacteria and Mould-Fungi may perhaps have played even a more important part in the preparation of a favourable substratum for the higher plants in the earliest phases of colonisation. Researches into the Bacterial flora were first undertaken during our (the third) expedition; it is, however, certain that these minute organisms were introduced on to the island and began to develope as soon as, and possibly even before, the algæ and spores." The number of bacteria present per gram of soil (2,200,000 the average of four samples) agrees with those found in the soil at Buitenzorg. Further, "several moulds were found on the culture-plate." Though no details are given of these there can be no doubt that at the present day the soil of the island possesses an abundant fungus-flora, and it is extremely probable that mycorrhizal fungi are as common there as in neighbouring regions. Thus, it seems that Krakatau presents no special difficulties in accounting for the occurrence of Orchids. There is, however, still the greater problem of accounting for the distribution of Orchids in general.

GHENT EXHIBITION.—In addition to visiting the Floralies, foreign excursionists will have the privilege of seeing free of charge the Château des Comtes, the Cloth Market, the Cathedral of St. Bavon, the Archæological Museum, the Botanical Garden, the ruins of the Abbey of St. Bavon, etc.

THE DELL PARK COLLECTION.

VERY few collections were more widely known or achieved so much fame as the one formed years ago by the late Baron Sir Henry Schröder. The plants contained therein were procured during an important period of Orchid history, at a time when many of the most popular species were being imported in large quantities. No more appropriate honour could fall upon so illustrious an amateur than to have his name perpetuated in such a fine species as Cattleya Schrœderæ. It is a matter

THE DELL PARK, ENGLEFIELD GREEN, SURREY.

of satisfaction to learn that many of the Orchids owned by the late Baron are now being cultivated by Baron Bruno Schröder, who has recently had an extensive range of glass erected near his mansion, Dell Park, Englefield Green, Surrey.

The glass houses are substantially constructed and arranged parallel with one another, a space of about 12 feet between each allows ample room for attending to the blinds and any repairs that from time to time become necessary. Each of these five houses is 110 feet in length, and divided into three sections. Four of them have a width of 13 feet, while the central one is 22 feet wide. Connecting these houses is a fine corridor, extending to a length of nearly 120 feet, and having a width of over 16 feet; it is of considerable height and undoubtedly one of the largest of its kind.

The sash-bars of all the houses are of the anti-drip pattern, and the ends of the glass are round so that rain and condensed moisture is drawn away from the bars and runs down the central area.

One end of this corridor is occupied by over 200 plants of Cattleya Hardyana alba, all grand plants, several having four leading growths. This cross was made with the variety of C. Warscewiczii having white sepals and petals, characters that are reproduced in the offspring, the labellum being richly coloured and standing out in strong contrast to the surrounding creamy-white segments. The central section of the corridor contains about 200 specimens of Læliocattleya Schrœderæ alba, a hybrid that, in this collection, commences to bloom at the end of October and continues nearly to the end of January. When Mr. J. E. Shill took charge of this collection in January, 1911, he at once commenced the work of producing new hybrids. Fortunately, there were available fine varieties of C. Maggie Raphael alba and Lc. Bella alba, and the crossing of these has produced one of the finest types of Læliocattleya ever seen. There are many superb specimens in this batch, and several of the spikes carried seven flowers. Our illustration depicts Lc. Schrœderæ var. The Conqueror exactly life-size. It is rather unfortunate that this fine hybrid can rarely be induced to carry a seed pod, numerous attempts to fertilise the flowers with different pollen have almost been failures. But this may be in some way connected with the special strain of this hybrid; it has been raised in other collections where the flowers, though not so large, seem better able to carry seed pods.

Other fine hybrids are Læliocattleya Anaconda (C. aurea × Lc. Pallas) and Lc. Mrs. Willoughby Pemberton, the latter a remarkable result derived from the fine Lc. Baroness Emma and Lc. eximia. Another remarkable hybrid raised in this collection is Lc. Ivanhoe, the result of crossing C. aurea with the well-known Lc. eximia; the immense flowers show the richest coloration in the segments, which will doubtlees be perpetuated in some of the many seedlings that have been raised from it. The last section of the corridor is filled with various Cymbidium hybrids of the insigne section, one example examined carried no less than eight many-flowered spikes, and there were several others with single spikes of unusual length.

Passing on to a section of the seed-raising department, one comes across a vast multitude of little seedlings, so numerous that they can only be counted in tens of thousands. Several fine crossings have been made and raised from the magnificent Sophrolæliocattleya Prince Hirohito, which received the high award of a Gold Medal at the Chelsea Show of 1921, and subsequently passed into The Dell Park collection. One can safely predict that some really startling novelties will be seen from this unique parent. In raising these seedlings every endeavour is made to get

LÆLIOCATTLEYA SCHROEDERÆ VAR. CONQUEROR.

In the Collection of Baron Bruno Schröder, The Dell Park, Englefield Green, Surrey.

them potted up singly in minute pots before the winter arrives. The seedlings that are left crowded together in the seed-raising pans never make the same rapid headway when subsequently removed. In potting the little seedings the smaller ones are generally placed near the edge, one in a pot, for in this position they appear to succeed better than when placed in the centre. The stronger seedlings are always placed in the centre of the pots.

Interest is also being taken in the production of hybrid Dendrobiums, especially crosses of the exceptionally fine D. Model, F.C.C., R.H.S. From this parent there are already 400 vigorous seedlings. In most collections Dendrobiums have rather dropped out of fashion, as well as existence, and when their popularity returns, as it surely will, these fine hybrids will be greatly appreciated. D. Phalænopsis is represented by a batch of 70 strong plants that were imported last year. They are still full of their native vigour, and have yielded a good supply of showy flower spikes. Another seedling house is devoted to Cymbidiums, and here may be seen several hundreds of healthy little seedlings that have been raised from carefully selected parents. An interesting rarity is Cymbidium Alexanderi album, a pure white variety. In these houses large shallow tanks of galvanised iron are erected under the staging and exactly over the hot-water pipes, thus furnishing an abundant supply of warm rain-water. In times of need these tanks can be replenished from much larger ones erected in the roof of the potting sheds.

Although Calanthes have been familiar subjects for many years, probably no such fine specimens as those in the Baron's collection have ever before been seen. Of Calanthe Harrisii over 150 flower spikes were produced during the past winter. On counting the buds and blooms on one of these spikes the number was found to be 48. C. Baron Schröder (Regnieri × vestita) is represented by two distinct varieties: in that known as superba the sepals and petals are rose-coloured and the labellum purple, while the variety alba has white sepals and petals. The batch of this elegant Calanthe produced about 70 spikes, several of them with over 40 flowers. All these plants are potted in fibrous loam, no other materials being included. Mr. Shill cultivates these plants with remarkable success, and some idea of their robust nature may be gained from the fact that one bulb alone weighed $1\frac{1}{3}$lb. Miltonias of the vexillaria section also grow unusually well, as may be proved by fine specimens of the varieties Lyoth, Charlesworthii, Baroness and Lord Lambourne, the latter a richly-coloured flower that received a First-class Certificate and Silver-gilt Lindley Medal at the Royal Horticultural Society, February 14th, 1922.

In another house may be seen large numbers of the finest Cattleyas; at one period of last year over six thousand flowers were open at the same time, and when cultivated to perfection, as they certainly are here, the effect

is truly magnificent. One may mention grand plants of Cattleya Trianæ var. The Baron, the finest of white forms, and awarded F.C.C., R.H.S., February 18th, 1913, also several yellow flowering hybrids of outstanding merit, among them Brassolæliocattleya The Baroness (Bc. Mrs. J. Leemann × Lc. Ophir), and Blc. maculata, in which the last-mentioned hybrid and Lc. Thyone are the parents. In Blc. maculata aurea the purple spots seen in the early results of this cross are not present. Unquestionably the finest yellow Cattleya ever seen exists in Blc. Amber (Blc. The Baroness × C. aurea). It is of great size, possesses wonderful colour, and has been admired by crowds of enthusiasts during the few occasions on which it has been publicly exhibited. Others in this section are C. Triumphans var. The Baron and C. Venus, both exceedingly showy aud very popular. Many varieties of Brassocattleya Mrs. J. Leemann have been seen in past years, but none so fine as the one shown from this collection at the Chelsea Show, 1921, when a First-class Certificate was deservedly awarded.

But few Læliocattleyas produce such a pleasing harmony of tints as Lc. Baroness Schröder (C. Trianæ × L. Jongheana), the expansive area of the labellum and its soft orange-yellow colour being the chief feature. Another charming hybrid is to be seen in Lc. Baroness Emma (C. Hardyana × Lc. eximia). White Cattleyas are not always easy subjects to cultivate, and on that account it is a pleasure to note fine specimens of Cattleya Cowaniæ alba, the magnifica variety of which was awarded a First-class Certificate, R.H.S., March, 1920. Cattleya Astron was raised here by crossing C. Loddigesii alba with C. Dusseldorfei Undine, and bears flowers that are not only pure-white, but very thick textured. A beautiful Cattleya exists in C. Hesperus, its parents being C. Enid and C. Hardyana. It was first seen in 1920, and our accompanying plate depicts this wonderful hybrid exactly life size. The colour is bright rosy-mauve, much darker on the labellum, the central area of the lip orange-yellow; a pleasing feature is the purple-mauve venation on the sepals and petals. Læliocattleya Victrix is well worthy of special mention; it has for its parents C. Trianæ Backhouseana and Lc. Aphrodite, and first flowered in June, 1921. Lc. San Juan (C. Mendelii × Lc. Aphrodite) received a First-class Certificate, R.H.S., June 29th, 1920, and is in every way a superb hybrid. Læliocattleya Golden Glow (C. Venus × Lc. Sunrise) was given a First-class Certificate when exhibited at the R.H.S. on August 9th, 1921. It is an attractive hybrid, of rich old gold colour, with the labellum rosy damask.

Although Cypripediums are not so numerous as Cattleyas, there are specimen plants of C. Maudiæ that have probably never been equalled, one plant alone has over a hundred growths, while several others are nearly as large. Cyp. callosum Sanderæ is represented by a specimen with twenty-five growths, and is equally meritorious from a cultural aspect, for it never

grows so vigorously as Maudiæ. The cultural method here employed is of interest, for the plants are grown in Sphagnum moss only, fresh supplies being periodically placed on the top and pressed down as the lower portion decays. One is apt to think that with this method of potting the plants

CYPRIPEDIUM EURYBIADES VAR. THE BARON, F.C.C., R.H.S., MARCH 27TH, 1917.

would become too sappy to produce satisfactory flowers, but such is by no means the case, twenty and more fine developed flowers are of frequent occurrence on each of these specimens. Cypripedium insigne is represented by the two best varieties, the giant one known as Harefield Hall, and the

yellow one as Sanderæ. Both make exceedingly attractive plants when grown to the fine state of perfection here attained. Several First-class Certificates have been awarded to choice Cypripediums when exhibited at the Royal Horticultural Society by Baron Schröder. They include C. Pyramus var. Garnet, having the dorsal sepal heavily blotched with dark purple on a white ground; C. Eurybiades var. The Baroness, in which the dorsal sepal is circular in shape, copiously blotched with claret-purple; C. Eurybiades var. The Baron, the fine qualities of which are well displayed in the accompanying plate, showing this fine flower exactly life-size; and C. Eurybiades var. Shillianum, a grand flower, having the dorsal sepal with numerous purple blotches and spots. In all these varieties of Cyp. Eurybiades the petals are unusually well developed, thus making the balanced flower that is so much appreciated by specialists of this particular section.

The cool house is admirably constructed for the cultivation of Odontoglossums and Odontiodas. It differs somewhat from the others by having a brick wall on either side of the central path, and by the under-staging being covered to a depth of nine inches with broken bricks, which, with the side walls, act as moisture holding material. The results obtained are satisfactory in every way, and in a few years time this section will probably be equal with the high standard seen in the Cattleya houses. Odontoglossum crispum xanthotes is represented by about fifty sturdy plants, and the remarkable point is that they do not seem to have any precise season of flowering, there is hardly a time when one or more spikes are not in course of formation. Among the coloured varieties of this popular species are some that have been cultivated here for over fifty years. The choice varieties include Graireanum, Pittianum, Leonard Perfect, apiatum, and a host of others that in the past have all enjoyed periods of considerable reputation. Among those of later date is O. crispum The Baroness, F.C.C., R.H.S., with very large flowers, prettily fringed at the margin of the segments, and heavily blotched with violet-purple on a white ground, the lip bearing a reddish-brown blotch. It is worthy of note that O. crispum apiatum received a First-class Certificate in April 1886 when exhibited by the former Baron. O. Pescatorei has two world famed representatives in the varieties Veitchii and Schrœderianum; the spike of the latter carried over 40 flowers last season. Space will not permit the mentioning of more than a couple of Odontiodas, and these are the fine Oda. Latona, Fowler's variety and Oda. The Dell Duchess, which last year produced a spike of 54 richly coloured flowers. Another example of good cultivation is a robust plant of Od. ardentissimum var. Ebor; it carried no less than 50 flowers on the last spike produced. We are able to give a reproduction of the painting of Odontoglossum Colossus, showing a single

CATTLEYA HESPERUS (C. HARDYANA × C. ENID).

In the Collection of Baron Bruno Schröder The Dell Park, Englefield Green, Surrey.

MILTONIA MEMORIA BARON SCHRÖDER.

Exhibited at the International Exhibition of 1912 by Lieut.-Col. Sir GEORGE HOLFORD, K.C.V.O.

flower, life-size, of this marvellous hybrid. The specific name is certainly well chosen in this case.

The propagation of the finest varieties of species and hybrids is always an important part of the cultural work, and in this collection several divisions of the cool and warm houses are specially devoted to growing on numerous back bulbs and small pieces. Among the esteemed plants are Brassocattleya King of Spain, Bc. Rutherfordii, both coloured and white

varieties, Bc. Shilliana, and many of the yellow flowering section. Other houses are devoted to thousands of hybrids, in all stages, from the tiny first-made bulb to those of nearly flowering size. All the careful work bestowed upon the selection of suitable parents will sooner or later have its reward, and the seedlings that have already flowered amply prove that the early work has been done on correct methods. Additional houses have already been planned and will shortly be erected for the accommodation of the rapidly advancing seedlings. Nearly all the finest varieties in this collection have been intercrossed, there are primary hybrids, secondary, and multigeneric, of all kinds. In one part over 150 seedlings exist that will be classified under the term Potinara, for they contain in their parentage the genera Brassavola, Lælia, Cattleya and Sophronitis.

Baron Schröder is a frequent exhibitor at the Royal Horticultural Society and has on several occasions won a Challenge Cup, as well as Gold and other Medals too numerous to mention. His exhibits always create considerable enthusiasm amongst other amateurs and never fail to be greatly appreciated by the Fellows and their friends. But however choice and varied the Orchids may be, the bringing forth of their full beauty rests entirely with their custodian. Mr. J. E. Shill has been cultivating Orchids for the long period of thirty-five years, and the Cultural Commendations which he has received have always been thoroughly deserved. The Lindley Medal is given specially for cultivation, and the fact that no less than six of these have been awarded to him during the last two years fully proves the high standard of excellence that is to be seen in all sections of this extensive collection.

CYPERORCHIS MASTERSII.—Although this species is frequently cultivated under the name Cymbidium Mastersii, it has been botanically separated from that genus chiefly because the narrow sepals and petals are connivent to the middle or beyond it, the flowers do not, therefore, expand like those of a true Cymbidium. This species was discovered by Wm. Griffith on the Khasia Hills about the same time as Vanda cœrulea, 1836-37. It has been found growing on the stems and branches of trees, often 20-30 feet from the ground. It was imported by Loddiges in 1841, but was not seen in flower until 1844, after which it remained a rare plant until collected in Assam by Simons in 1856-57. Its specific name commemorates that of Mr. Masters, one of the superintendents of the Botanic Garden at Calcutta during the directorship of Dr. Wallich. The racemes are short, with from seven to ten flowers, each about two inches long, ivory-white, frequently with some rose-purple spots on the lip, and almond scented. The cultural treatment of C. Mastersii, as well as of C. elegans, is similar to that adopted for other Cymbidiums from the same locality.

ODONTOGLOSSUM COLOSSUS, IN THE COLLECTION OF BARON BRUNO SCHRODER.

CALANTHE ANGELA, BECKTON'S VAR.—A fine inflorescence of this elegant hybrid Calanthe comes from the collection of B. J. Beckton, Esq., after being exhibited at the Manchester Orchid Society on January 4th, when it received a First-class Certificate. The flowers are a deep crimson-rose colour, except the anther cap, which is creamy white. The parentage is Chapmanii × Sedeni var. burfordiensis. The original Calanthe Angela was exhibited by the late Mr. N. C. Cookson, and was awarded F.C.C., R.H.S., on December 22nd, 1908.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

WITH the advent of March we reasonably expect an increase of light and sunshine, and each division will require more attention in regard to ventilation and atmospheric moisture. This will produce gradual activity amongst the plants, both as regards flower and growth. Owing to more favourable conditions outside, the temperature of the houses may now range a few degrees higher all round, both night and day, than those given in the January number. It will now be necessary to have the blinds or shading on the houses fixed in their places, ready for use at any moment, for the sun is getting powerful. In the coolest division the temperature under the sun's influence quickly rises above what is necessary for the well-being of the plants. The growths and leaves that are now developing are very tender and soon get scorched and disfigured if exposed to bright sunshine. Discretion must be exercised in the use of the blinds. It is advisable to be on the safe side by not exposing valuable plants to the sun's influence; at the same time the blinds should not be allowed to remain down longer than is really necessary.

VENTILATING. Cold winds ofttimes alternate with bursts of bright sunshine, the external temperatures being perhaps 40 degrees or even lower, under these conditions it is not advisable to admit fresh air in sufficient volume to keep down the temperatures. On such occasions use the blinds. When the outside temperature rises to 45 degrees, the amount of ventilation may be increased and shade afforded with discretion. These remarks apply more especially to the cooler houses containing such plants as Odontoglossums, Masdevallias, and cool-growing Cypripediums. The Cattleya and intermediate houses will only require shading for an hour or so during the middle of the day. Any inmates of these houses that require more shade should be placed at one end and be shaded independently. Many occupants of the East Indian house, such as Phalænopses, Bulbophyllums, Angræcums, and the warm-growing Cypripediums, will require protection from the sun. Bolleas, Warscewiczellas and the dwarf-growing Zygopetalums should be shaded at all times.

CŒLOGYNE CRISTATA. This is the most popular species of the genus and may be successfully cultivated in the ordinary plant stove during the season of growth; a cooler structure will suffice throughout the season of rest. These plants are now pushing their flower spikes and should be given an intermediate temperature, water should be applied to the roots to assist their development, but care should be taken to keep the water from the spikes as this frequently causes them to damp off. When the flowering is over, the flower scapes should be removed, and any necessary re-potting

may be done. This Cœlogyne does not need too frequent root disturbance. But specimens that have overgrown their receptacles, and where the compost is in a bad condition, should be turned out of the pots or pans, the dead roots removed, and the back pseudo-bulb cut away, leaving three behind each growing point. They may then be made up again into shapely specimens. Cœlogynes are not deep rooting plants, and in consequence pans six or nine inches in diameter are preferable to pots for this class of Orchid. A mixture consisting of osmunda fibre, good fibrous loam and sphagnum moss in equal proportions, with a sprinkling of finely broken potsherds is a suitable rooting medium. In re-making the plants into specimens, a large number of growing points are required; these should be arranged evenly over the pan in a manner so that the centre of the plant is furnished with growing leads. It may be necessary to use wire pegs to hold the pseudo-bulbs in position until the roots are re-established in the compost. After re-potting, give the plants a position in a warm house, apply water sparingly, but spray them overhead once or twice each day, more especially during bright weather. Where a number of these plants are grown, a few should be re-potted each year. This is preferable to disturbing the whole collection at one time, as Cœlogyne cristata does not flower so freely the first year after re-potting. Other Cœlogynes, such as C. Massangeana, C. Dayana and C. Lowii, on account of their pendulous flower scapes, are best grown in teak wood baskets furnished with wire handles, and suspended from the roof rafters. Others, such as C. aspersa, C. tomentosa and C. Mooreana, grow best in pots or pans. Partial shade is needed by all Cœlogynes, and at no time should the soil be allowed to become excessively dry.

THUNIAS. Towards the end of this month it will be necessary to re-pot the Thunias. These plants should be potted annually and the work should be done as soon as they have commenced to grow afresh. These plants should be shaken out of the old compost and the dead roots shortened to within an inch or two of the base. The most convenient way is to plant six or seven of the strongest stems together in a seven inch pot, which should be nearly half-filled with clean crocks, place a thin layer of turfy loam over these, the rest of the space being filled with the compost, which should consist of good fibrous loam, osmunda fibre, and sphagnum moss, cut up moderately fine, in equal proportions, with sufficient crushed crocks and silver sand added to ensure porosity. Pot moderately firmly, placing the bases of the young growths on the compost, and secure each pseudo-bulb firmly to a neat stick. Place the plants in the lightest position possible in the warmest house, with the tips of the old stems near the roof glass. The young growths revel in moderate sunshine, but during the middle of the day when the sun's rays are very powerful they should be

thinly shaded. For a few days after re-potting, until they have made plenty of roots, afford water sparingly. The foliage should be syringed whilst the plants are growing actively, as Thunias are subject to attacks of red spider insects.

EPIDENDRUM. Plants of Epidendrum vitellinum are developing fresh roots and any necessary re-potting should be attended to. This Orchid resents frequent root disturbance. Therefore any plants that are growing in pots sufficiently large to accommodate the new pseudo-bulbs, may remain in the same receptacle for another season, providing the compost is not impoverished and sour. Newly potted plants should be watered sparingly until after the young growths are two or three inches high, when moisture should be applied liberally until the new pseudo-bulbs are completed. This species grows well in a light position in the cool house.

Epidendrums of the radicans section, E. O'Brienanum, E. Burtonii, and E. Boundii, are rooting freely. Plants that have become unsightly and require repotting should be attended to at once. These plants, if neglected, will grow to a great length, and become unsightly, but may be kept dwarf and compact by proper attention. Straggling specimens should be cut through the pseudo-bulbs to a desired length below some of the aerial roots. The stems may be potted singly, or several may be placed together to form specimens. The lower parts of the pseudo-bulbs from which the tops have been removed may be left in their old pots. They will soon start growing afresh, and, when the roots are active, may be re-potted.

EPIPHRONITIS VEITCHII. This pretty bigeneric hybrid, raised from Sophronitis grandiflora crossed with E. radicans is very similar in habit to its second-named parent, excepting that the influence of Sophronitis has somewhat dwarfed its growth. Like E. radicans this hybrid is continually pushing roots from the stem and should be dealt with as recommended for that species.

LYCASTE.—This American genus contains some most useful and showy kinds. For the most part they are natives of Central America, of easy culture, with showy, long-lasting flowers. Obtained from fairly high altitudes, the cool and intermediate houses suit them best. The plants should be potted chiefly in fibre, with a little fibrous loam, well drained and liberally watered when growing. Though requiring a rest after growth is completed, they should never be allowed to suffer from want of water. The plants are characterised by stout, ovoid pseudo-bulbs, bearing from one to three plicate leaves. In many of the species, particularly in aromatica, Deppei, &c., after the leaves fall, two sharp, thorn-like processes are left on the cicatrice at the top of the bulbs. The flowers are carried singly on erect scapes.—*Sanders' "Orchid Guide."*

ONCIDIUM SPLENDIDUM.

THE first record of Oncidium splendidum appears to be in the herbarium of Achille Richard. Its introduction into French gardens is due to M. Quesnd, of Havre, who received plants from Guatemala. Warner and Williams include a coloured plate of it in the *Orchid Album*, viii., t. 373, with the remark that the first plant that appeared in England was obtained by us when on a Continental journey, and it remained the only plant in Britain for a very long time. A few duplicates were subsequently obtained by division, and they realised exceedingly high prices. A plant exhibited by Lord Londesborough at the Royal Horticultural Society, February 16th, 1870, was awarded a First-class Certificate.

At the above date an impression prevailed that O. splendidum was a native of Mexico, and collectors were sent out to that country by Messrs. Sanders to obtain a supply. After several months' search they stated there were none to be found. They were then directed to go to Guatemala, where plants were secured, at first in small quantities, but subsequently in greater numbers as a better knowedge of its exact habitat was obtained. Although this plant has been described as Oncidium tigrinum var. splendidum (*Bot. Mag.* 5878), present day authorities regard it as a distinct species. It is the subject of a coloured plate in *Reichenbachia* (ii, t. 78), where the distinctive characters are given. The habit of growth is quite distinct, and the flowers, although resembling each other at a casual glance, are very different in form. In O. tigrinum the sepals and petals are spreading, and the lip is characterised by its long shank, with two auricles at the base, and deeply emarginate blade. In O. splendidum the sepals and petals are always recurved, and the lip is, comparatively, only slightly emarginate, and does not possess a narrow shank. There are other differences in the crest and column sufficiently distinct to keep these two plants apart as separate species. O. splendidum has an erect leaf, very leathery and thick in texture, channelled above and prominently keeled beneath.

O. splendidum holoxanthum is a remarkably distinct as well as beautiful variety that was exhibited at the meeting of the Manchester Orchid Society on February 1st by Bertram J. Beckton, Esq., of Irlams-o'Th'-Height, Manchester. It carried a branched spike of 18 flowers and was unanimously awarded a First-class Certificate. In this rarity there is no evidence whatever of the purple-brown spotting usually seen on the sepals and petals, which are clear greenish-yellow. The expansive labellum is of an intense chrome-yellow colour, and the purple-brown blotch that is normally present on either side of the base of the lip has also vanished, its position being occupied by a creamy-white area of similar size. In the days when

species were being imported in large quantities, varieties so distinct as this were very rarely detected, and now that O. splendidum is by no means plentiful, the variety holoxanthum posesses attractions that will always cause it to be regarded as one of the most beautiful of rarities.

BRASSOCATTLEYAS IN VICTORIA, AUSTRALIA.—In nearly all primary hybrids of Brassavola Digbyana the prettily fringed labellum is the principal attraction. So strong is the Brassavola influence that even the broad petals of species such as Cattleya Mendelii and C. Mossiæ become considerably lessened in width when mated with it. Brassocattleyas succeed well in the collection of D. J. W. Chandler, Esq., East Malvern, Victoria, Australia, as photographs received from him fully prove. In that of Bc. Digbyano-Mossiæ var. Queen Alexandra the pure white flower measured ten inches from tip to tip, while the roundly formed labellum was four inches across, and deeply fringed at the margin. Strange to state, one of the petals was slightly fringed on a portion of its lower edge. Another photograph shows Bc. Digbyano-Mendelii (Empress of Russia), carrying two fine flowers, but not quite so large as the former. Mr. Chandler writes: "The Brassocattleyas grow very well in this climate and are not at all fussy regarding extremes in temperature. I have grown them without any artificial heat, also with just a little on cold frosty nights, and find they flourish under both conditions. The only difference in treatment is that they are kept rather dry when no artificial heat is applied. The temperature goes as high as 105 in the summer and drops as low as 42 in the winter."

SEED RAISING ON ELECTRIC WIRES.—Under the heading of Orchids on Telegraph Lines, a note in *Le Journal des Orchidées* of October 15th, 1891, states that at many points in Brazil, notably about Rio de Janeiro, the telegraph wires are covered with clusters of Orchids, the festoons of which produce a very decorative effect, but tend to obstruct the currents and delay the messages. The birds are very fond of the fruits of Orchids, and eat them, depositing the seeds on the wires and poles, where they germinate and in a short time produce more or less tufted plants.

GHENT QUINQUENNIAL EXHIBITION.—The following entrance charges will be made at the Ghent Exhibition:—Saturday, April 14th, 25 fr.; Sunday, April 15th, 12.50 fr.; Monday, April 16th, 12.50 fr.; Tuesday, April 17th, 6.25 fr.; Wednesday, April 18th, 6.25 fr.; Thursday, April 19th, 6.25 fr.; Friday, April 20th, 2.50 fr.; Saturday, April 21st, 2.50 fr.; Sunday, April 22nd, 2.50 fr.; tax included. During the period of the Exhibition, Messrs. Sanders will be pleased to receive at their Bruges Nurseries a visit from all interested in Orchids.

PHALÆNOPSIS HARRIETTÆ.

THIS hybrid between P. amabilis and P. violacea was raised by Seden for Messrs. Veitch. It is botanically interesting, for the parents belong to two distinct sections of the genus. It first flowered in 1887, and received a First-class Certificate, R.H.S., on July 26th. Only one plant was raised, and this passed into the collection of the Hon. Erastus Corning, of Albany, U.S.A., the specific name being that of his daughter. At the sale of the Corning collection it was acquired by Mrs. G. B. Wilson, and on the disposal of her collection it was purchased, along with many other Orchids,

PHALÆNOPSIS HARRIETTÆ.

for the garden of Louis Burk, Esq., at Philadelphia. The last mentioned collection, which is considered to be one of the most representative in the United States, has for the past two years been under the care of Mr. H. E. Moase. In a letter recently received from him we learn that this rare Phalænopsis, though small, is progressing, and is now forming the first flower spike since its inclusion in Mr. Burk's collection. Our illustration is from Veitch's "Manual of Orchidaceous Plants," in which the sepals and petals are described as cream colour, much spotted and stained with rose-purple on the basal half; the labellum bright rose-purple, as in P. violacea.

ROYAL HORTICULTURAL SOCIETY.

January 30th, 1923.

MEMBERS of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), C. J. Lucas, R. Brooman White, S. W. Flory, F. K. Sander, H. T. Pitt, J. E. Shill, A. McBean, W. J. Kaye, E. R. Ashton, T. Armstrong, W. H. White, Pantia Ralli, Stuart Low, J. Wilson Potter, Gurney Wilson, and F. Peeters.

FIRST-CLASS CERTIFICATE.

Cypripedium Dulcis, Lambeau's var. (Curtmannii × Alcibiades), from M. Firmin Lambeau, Brussels. A very distinct variety, of medium size, the orbicular dorsal sepal undulated on the whole margin, white on the upper portion, the lower part reddish-brown, and the central area suffused with rose. Petals yellowish tinged with mahogany and having a dark median line, pouch similarly coloured. This is the only one of its kind which has flowered from the batch, and in order to perpetuate the effective undulating character of the dorsal sepal, as well as other distinct qualities, M. Lambeau intends fertilising it with its own pollen.

AWARDS OF MERIT.

Odontoglossum Llewellyn (amabile × Georgius Rex), from Messrs. Charlesworth & Co. A handsome flower partaking of the heavily blotched crispum type, the fleshy flowers being of fine shape, rose-tinted, and blotched with deep purplish-rose.

Brassocattleya Hannibal var. Helen (Bc. Digbyano-Warneri × C. Fabia), from G. W. Bird, Esq., Manor House, West Wickham (gr. Mr. H. Ridden). This plant carried a spike of two large flowers, the labellum prettily fringed, and of a uniform deep rosy-mauve colour. One of the best hybrids of Digbyano-Warneri.

CULTURAL COMMENDATIONS.

To Messrs. Armstrong & Brown for a robust plant of Odontoglossum Strathmore (Apollo × Hylandianum), carrying a branched spike of 47 flowers, resembling Pescatorei in habit, with white ground and crimson-red blotching.

To Mr. S. Lyne, Orchid grower to J. J. Bolton, Esq., Claygate, Surrey, for a grand plant of Odontoglossum ardentissimum var. Pintadeau, carrying a long spike of 22 flowers, brownish-red in colour, margined with white.

OTHER EXHIBITS.

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood), exhibited the noble Cypripedium Forest King, with a bold greenish dorsal sepal; Cyp. J. M. Black var. Sandow, with petals unusually well developed, and worthy of an

award; Cyp. Etta, Rosslyn var., with the dorsal heavily spotted; and Cyp. Rowland, a novelty of much promise.

Messrs. Charlesworth & Co. exhibited Odontoglossum Creon (Jasper × Maillardianum), with a spike of 18 reddish-brown flowers; Od. Wilckeanum aureum, carrying a spike of 12 bright yellow blooms, the segments blotched with darker yellow; Od. Olympia, a bold and well-marked hybrid; also Potinara Juliettiæ, of deep crimson colour, and Cypripedium Alcibiades Illustris, of grand formation. Odontonia Dora (Bleuana × Dora) bore a large flower, sepals and petals white, suffused with purple, and spotted with purple-red, the broad lip stained with rose at the base, and the crest bright yellow.

Messrs. Sanders staged the interesting Cœlogyne intermedia (cristata × Massangeana), the pretty Cattleya Enid, Cypripedium Ellerdale (bingleyense × insigne), with a richly coloured flower, Cyp. Charlotte Dillon, and the handsome Cyp. Alcibiades Illustris.

Messrs. Armstrong & Brown staged Cymbidium Radiant (I'Ansoni × erythrostylum), with greenish-yellow ground, the lip effectively marked with reddish spots and lines.

Messrs. J. & A. McBean exhibited Cattleya Octave Doin, a charming variety with a spike of four flowers, Cattleya Caroline, the result of crossing Enid and Percivaliana, and yielding one of the largest of the Percivaliana type of flower, three of which were carried on the spike. Odontoglossum Dodeham var. Prince of Orange had a spike of twelve flowers, yellow with reddish-brown blotching, and of excellent shape. The Brassocattleyas included Bianca var. Grand Monarch, with two large flowers, the wide labellum having the whole of the throat and surrounding area of bright orange colour, making an effective hybrid.

Messrs. Flory & Black staged six varieties of Cypripedium Maisie (Rickardsiæ × Mrs. H. Jenkins), all pleasing forms of this new hybrid. Also Cyp. Odin, of apple-green colour, the dorsal sepal effectively bordered with white, and Cyp. Chloris (Mrs. H. Jenkins × Lord Wolmer), a novelty in which the pretty dorsal is minutely spotted on a white ground.

Baron Bruno Schröder, Englefield Green, Surrey (Orchid grower, Mr. J. E. Shill), exhibited the superb Cypripedium Eurybiades var. The Baroness, the large flatly displayed dorsal being four inches in width, greenish at the base, the central and upper part boldly spotted with crimson-purple. One of the largest and finest of this section.

J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne), staged Sophrolælia Felica, bearing two medium-sized flowers of a delicate rosy-mauve colour.

Messrs. Stuart Low & Co. exhibited several interesting Sophronitis hybrids, among them being Sc. Prince Shimadzu, in colour apricot-yellow

tinged with rose, Sl. Leda, of fine colour, and Slc. Irene, one of the best of the S. grandiflora hybrids. Also Læliocattleya Rubella (Nella × St. Gothard), of deep mauve tint, and Odontoglossum Faustina, Low's variety, the latter possessing fine shape and coloration.

February 13th, 1923

Members of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), J. Cypher, H. T. Pitt, H. G. Alexander, J. T. Barker, C. J. Lucas, R. Brooman White, F. J. Hanbury, G. F. Moore, H. H. Smith, S. W. Flory, J. E. Shill, F. K. Sander, E. R. Ashton, Stuart Low, J. Wilson Potter, A. Dye, C. H. Curtis and Gurney Wilson.

FIRST-CLASS CERTIFICATES.

Odontonia Baroness Schröder (M. Bleuana × O. The Czar), from Messrs. Charlesworth & Co. One of the finest hybrids yet seen of the genera Odontoglossum and Miltonia. The young plant carried a spike of five flowers, in which all the segments were flatly displayed, sepals and petals rose tinted and blotched with reddish-crimson on their inner area, the expansive labellum blotched and prettily freckled with reddish tints.

Dendrobium Gatton Monarch var. F. J. Hanbury (D. Lady Colman × D. nobile var. A. A. Pearson), from F. J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Matthews). A remarkably fine result in which all the good qualities seen in D. Lady Colman are perpetuated, as well as those of the second parent, this being a fine variety of the nobile nobilius section. The finely developed bulb carried six flowers and buds, all the segments well above the usual size, suffused with purple-rose, the broad labellum bearing a deep maroon-coloured blotch, surrounded by a whitish area, and the margin tinged with rose.

AWARD OF MERIT.

Odontoglossum Purple Queen (percultum × Dusky Monarch), from J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne). A very handsome hybrid, the erect spike carrying four large flowers of deep rose-purple colour, and with a reddish overtint; a narrow white margin to the sepals and petals adds to its beauty; the labellum white at the apex, and with a prominent yellow crest at the base.

CULTURAL COMMENDATION.

To Mr. H. G. Alexander, Orchid grower to Lieut.-Col. Sir George Holford, K.C.V.O., for five finely cultivated plants of Cattleya Percivaliana var. Lady Holford, one of which carried six flowers. All had been propagated from the original plant that received a First-class Certificate, R.H.S., December 16th, 1913. The flowers are pure white, except for a pleasing apricot colour on the disc and throat of the labellum.

GROUPS.

Messrs. Charlesworth & Co. were awarded a Gold Medal for a very fine exhibit containing excellent examples of the xanthotic varieties of Odontoglossum crispum, as well as the bright Od. Wilckeanum aureum. Among the numerous blotched Odontoglossums were Adula, with a fine spike of thirteen flowers, Agapetam, of rich chestnut-brown, and eximatum, an interesting cross between eximium and maculatum. Calanthes were in excellent condition, and comprised the pure-white Harrisii, the elegant Wm. Murray, and others. Lycaste Skinneri alba, Phaius Cooksoniæ and Masdevallia Chimæra were all of interest. Læliocattleya Marcus, of orange-yellow colour, Lc. Thesis (Lc. Myrrha × C. Trianæ), and C. Trianæ maxima were seen to advantage, as also was the richly-coloured Potinara Juliettæ. The back part was rendered attractive by many-flowered spikes of Oncidium Cavendishianum and On. splendidum.

Messrs. Sanders received a Silver Flora Medal for an excellent group containing many fine examples of Lælia Gouldiana and the pretty Vanda Watsonii. Cattleya Avalanche (Mary Sander × Snow Queen) bore a beautiful pure-white flower, and other albinos were seen in C. Suzanne Hye de Crom. Cymbidiums included Butterfly, with large flowers of a pleasing golden-buff colour, while the popular Lycaste Skinneri was very well represented by selected varieties. This group had along the front row many interesting species, among them Sarcochilus Fitzgeraldii, Bulbophyllum Dayanum, Eria stricta, and Cirrhopetalum picturatum, the latter being always pleasing.

Messrs. Cowan & Co. were awarded a Silver Flora Medal for a well-arranged group in which several grand varieties of Cattleya Tityus and C. Ultor were included. C. Douai carried pure-white flowers, and Lc. Hassalli alba had a slight rose tint on the lip. Among the Cymbidiums were excellent varieties of Coningsbyanum, and of Sybil (eburneum × Pauwelsii). Odontoglossums were represented by Calypso, with a spike of fourteen flowers, yellow and brown, and Rubens, of fine formation. Several elegant Cypripediums were well placed.

Messrs. J. & A. McBean received a Silver Flora Medal for a selection of Cattleyas, including chocoensis alba and Snowflake, both carrying pure-white flowers. Odontioda Rosina bore several flowers, excellent in shape, and of a colour resembling crushed strawberry. In the centre was a grand variety of Lc. Schrœderæ, and on either side good forms of Lc. Beatrice and Lc. Monica. Lc. Eunice (C. chocoensis alba × L. anceps) carried tall spikes with several attractive flowers. A pretty hybrid was seen in Slc. Rosalind (Lc. Dominiana × Sc. Pearl).

Messrs. Cypher & Sons received a Silver Flora Medal for an excellent exhibit of choice Cypripediums, all the plants being robust and well-

flowered. Among the most attractive were Bridgei (Argus × Godseffianum), richly coloured, Queen of Italy, with four flowers, Hercules (Sultan × Van Dyck), insigne Snow Queen, the well-known Alcibiades magnificum, Scipio, and Hermes, the latter being a variety of Lord Wolmer. In front of these plants were several well-flowered examples of Cœlogyne cristata.

J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne), was awarded a Silver Banksian Medal for a very pleasing exhibit of Dendrobiums, including nobile Harefield Hall, n. Berkeley's var., n. F. W. Moore, and n. Hardyana, all well-flowered. Odontoglossum Marjorie carried a spike of seven flowers, with reddish-brown blotching, and O. crispum was represented by an excellent variety of the home-raised type. Cattleya Thora bore a flower of fine shape, of a pleasing rose colour, with the throat golden-yellow. Sophronitis hybrids were well represented by Slc. Niobe, and Blc. Muriel was in every way a fine showy hybrid.

Lieut.-Col Sir George Holford exhibited Cymbidium Pippit (Gottianum × Miranda), with an erect spike of three large flowers, emerald green in colour, with reddish-crimson markings on the lip.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey, staged Dendrobium speciosum fusiforme, carrying six many-flowered spikes, also Cœlia macrostachya, an elegant species with erect spikes of rose-red flowers. Both these plants attracted much attention.

Pantia Ralli, Esq., Ashstead Park, Surrey, exhibited Odontioda Rubicon (Oda. Coronation × Od. Mars), with a spike of fourteen flowers, the segments round, of ruby-crimson colour, the tips a little lighter. A hybrid of much promise.

F. J. Hanbury, Esq., staged Dendrobium Miss Florence E. King (D. The Gem var. Artemis × D. nobile var. A. A. Pearson), an excellent result in which the numerous flowers were well above the normal size, in colour rose-purple, with a dark centre to the lip.

Messrs. Stuart Low & Co. exhibited the quaint Bulbophyllum siamense, the brightly-coloured Lælia Cowanii, Dendrobium aureum, with numerous flowers, D. nobile var. Sir F. W. Moore, fine varieties of Odontoglossum crispum, as well as choice Cypripediums.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), exhibited the fine Cattleya Tityus, Gerrish's var., also Odontioda Lerna, of claret-red colour, and Odontoglossum crispum Sir Bedivere, an excellent variety with thick fleshy segments, and of fine formation.

ORCHID CHALLENGE CUP.—The special Challenge Cup, valued at 50 guineas, presented by members of the Orchid Trade, to encourage amateur exhibits, will be offered for competition at Chelsea. It is restricted to those who employ not more than three assistants, including the head gardener.

MANCHESTER ORCHID SOCIETY.

February 1st, 1922.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, W. Giles, A. Hanmer, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

S. Gratrix, Esq., West Point, was awarded a Gold Medal for a fine group containing a variety of Odontoglossums, Dendrobiums and Cypripediums.

A. Hanmer, Esq., Buxton, received a Large Silver Medal for a group in which many fine hybrids were included. A similar award was given to A. T. Cussons, Esq., Prestwich, for an exhibit of Cypripediums in variety. B. J. Beckton, Esq., Irlams-o'th'-Height, was awarded a Silver Medal for a group containing several rare species, including Arachnanthe Clarkei and Bulbophyllum tremulum.

Col. Sir J. Rutherford, Bart., Blackburn, staged Cypripedium Verona var. Cyme, C. Verona var. Gold Crest, and C. Vogelzang.

The Hon. Robt. James, Richmond, Yorks, exhibited Cypripedium Arthur, and C. Schlegelii var. Serena, both of which obtained awards.

Other exhibitors included D. Losh Thorpe, Esq., Carlisle; H. T. Pitt, Esq., Stamford Hill, London; the Rev. J. Crombleholme; Messrs. Cypher & Sons, Cheltenham, who were awarded a Large Silver Medal for a group; Messrs. Keeling & Son, Bradford; and Mr. J. Evans, Colwyn Bay.

First-class Certificates.

Cypripedium Forest King, a large flower of good form and intermediate between the parents; and Cyp. J. M. Black var. Samson, very distinct, with the large dorsal sepal well spotted, and broad sepals; from H. T. Pitt, Esq.

Oncidium splendidum holoxanthum, the pure yellow variety; from B. J. Beckton, Esq.

Læliocattleya Schrœderæ var. Imperator, a magnificent flower, sepals and petals white, lip and tube crimson-purple; from S. Gratrix, Esq.

Cymbidium Goldflake var. Arthur (J. Davis × rosefieldense), a distinct hybrid, sepals and petals green, the lip prettily marked; from the Hon. Robert James.

Læliocattleya Eunice magnifica (C. chocœnsis alba × L. anceps alba), the finest variety of the type, flowers pure white; from D. Losh Thorpe, Esq.

Cattleya Tityus var. Ada Evans, an excellent specimen of the type, flowers of large size, fine colour, lip exceedingly dark; from Mr. J. Evans.

AWARDS OF MERIT.

Odontioda Cordor, Odontoglossum Amazon, and Cattleya Enid alba magnifica; from S. Gratrix, Esq.

Cypripedium Desdemona var. Radiant, Cypripedium Thais var. Gratrixiæ; from Mrs. Gratrix.

Cypripedium General Degoutte (Earl of Tankerville × Mrs. F. W. Ashton), and Odontoglossum Odessey (parentage unknown); from A. Hanmer, Esq.

Calanthe Rosabelle (Wm. Murray × George); from B. J. Beckton, Esq.

Cymbidium Schlegelii var. Serena; from the Hon. Robert James.

AWARDS OF APPRECIATION.

Odontoglossum Amethyst var. Viking, and Od. Lambeauianum var. His Majesty; from Mrs. Gratrix.

Odontioda Dacia var. Salonica Odm. eximium × Oda. Joan); from A. Hanmer, Esq.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Lc. Schrœderæ, Dendrobium nobile and D. Chrysodiscus. Mr. Gardner for Lc. Eunice magnifica, and Cattleya Schrœderæ var. Prince Henry. Mr. W. A. Stewart for Goodyera discolor.

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February 15*th*, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Burns, J. Birchenall, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, A. Hanmer, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, D. Losh Thorp, J. Lupton, D. McLeod, Dr. F. T. Paul, F. K. Sander, E. W. Thompson, J. Whitham, H. Arthur (secretary), and Mr. J. E. Shill (visitor).

S. Gratrix, Esq., was awarded a Gold Medal for a very fine exhibit of excellent hybrids. Large Silver Medals were granted to A. T. Cussons, Esq., for a group containing Cymbidiums, as well as the handsome Agræcum sesquipedale; and to Mrs. Bruce and Miss Wrigley for a beautiful group principally composed of Lycastes of the Skinneri section.

J. Whitham, Esq., Crompton Hall, staged a group of Cypripediums, to which a Silver Medal was awarded, and Silver-gilt Medal points were granted to Capt. W. Horridge for a collection of cut Orchid flowers.

Col. Sir John Rutherford, Bart., Blackburn, was awarded a Large Silver Medal for a group of Odontoglossums in variety, and a similar Medal was granted to Messrs. Cypher & Sons for a fine exhibit of Cypripediums and Dendrobiums. Messrs. Keeling & Sons staged various Cypripediums, as also did Mr. D. McLeod. Mr. J. Evans staged Odontoglossum Strathmore. B. J. Beckton, Esq., exhibited a collection of photographs of Cypripediums, natural size, to which a Silver Medal was awarded.

(*To be continued.*)

THE ORCHID REVIEW.

VOL. XXXI.] APRIL, 1923. [No. 358.

NOTES.

DISA ATRICAPILLA.—The colouring of this South African species is very peculiar. The side sepals are divided in this respect longitudinally into two parts, the anterior half being white, the posterior half black-purple on the outer or lower side, deep crimson on the upper; the hood greenish-white and veined; the petals and lip pale green, variously mottled with purple.

LÆLIA DAYANA CŒRULEA.—Another instance of the raising of species from seed in this country has occurred in the collection of Philip Smith, Esq., Ashton-on-Mersey, Manchester. His gardener, Mr. E. W. Thompson, fertilised Lælia Dayana cœrulea with its own pollen, and one of the resulting seedlings has the sepals and petals of light sky-blue colour, while the labellum is of bluish-purple on each side of the front lobes, and with the usual raised keels of dark colour along the central area.

CŒLOGYNE BARBATA.—This attractive species is frequently found a difficult subject to cultivate, and on that account its flowers are rarely seen at their best. In the Gatton Park collection Mr. Collier has successfully overcome the difficulties by placing the plants in the cool house, facing north, and where there is an even temperature a little warmer than that of the Odontoglossum house, but never falling below 55 degrees. This species was first discovered by Griffith in Bhotan, and afterwards by Gibson and Thomas Lobb, on the Khasia Hills, near Mamloo, at 4,000-5,000 feet elevation. Its first appearance in Europe appears to have been in 1878-9, when it was imported by Mr. Wm. Bull. The flowers are nearly three inches in diameter, sepals and petals white, the middle lobe of the lip blackish-brown and fringed with shaggy blackish hairs.

ORCHIDS FROM SEED IN TROPICAL COUNTRIES.—The more closely we observe the wise provisions of nature the more shall we be convinced that our favourite Orchids will continue to flourish and yield a supply for the thousands of growers in the different parts of the Globe, not only in Europe, but also in countries where the climate is suited to the growth of the plants

without artificial heat. No doubt we shall in time have them increasing freely from seed, as in their native habitats. Moreover, great results may be looked for in tropical countries by hybridising the different species, and sowing the seeds in places where they may thrive without the aid of man. It takes some years to get seedlings into flowering plants, but the time will be repaid if a careful selection of parents is made, for after the seeds are ripe they will sow themselves, and be carried by the wind into various congenial places. The insects will also do their work by carrying the pollen to the flowers of other species. When seeds scatter themselves about naturally, we cannot but think that good results must follow. It would be a most interesting pursuit for those who have estates in tropical countries to import Orchids from different parts of the world, for they would thus be enabled to encourage their growth and in time might turn them to good account, especially if new species and varieties are forthcoming.—*B. S. Williams, in Orchid Album*, 1886.

ORCHIS PRÆTERMISSA.

AN interesting article by the Rev. T Stephenson, D.D., and Mr. T. A. Stephenson, M. Sc., on Orchis prætermissa, Druce, is contained in the *Journal of Botany* for March, 1923 (vol. lxi., pp. 65-68). The claim of this plant to a distinct status has been contested, especially by the late Mr. Rolfe, who held (*Orchid Review*, 1920, 165) that O. latifolia is probably a species with unspotted leaves, seeing that Reichenbach had already separated (as O. majalis) the spotted forms from the latifolia aggregate. Messrs. Stephenson, however, cannot agree with this contention; for in all continental floras seen by them, O. latifolia is still described as a plant with leaves usually spotted, and no large group of unspotted forms is separated, as far as their memory serves. They consider that "O. prætermissa is a thoroughly well-marked and distinct species, whose segregation has helped materially to clear up the puzzling problems connected with the Marsh Orchids."

A good photographic reproduction of two of the many types of O. prætermissa is given, as well as enlarged flowers of a common form of the type, and of one near to, if not precisely like, var. macrantha. The authors only describe the forms sufficiently to distinguish them from their nearest neighbours, and especially from O. incarnata. The plants prefer damp situations, though they are said to be not so often found in standing water as O. incarnata. O. prætermissa is distributed over the whole area of England and Wales, wherever the ground is suitable, but occurs much more sparsely in Scotland, where it is occasionally found. This article forms a valuable addition to our knowledge of British Orchids.

DESCENDANTS OF COCHLIODA SPECIES.

WHEN does a descendant of Cochlioda cease to be an Odontioda? This a question by no means easy to answer. At some future date a definite decision will be required, and it may be the R.H.S. Orchid Committee to whom the appeal will be made. The original cross between Cochlioda and Odontoglossum was Odontioda Vuylstekeæ (C. Nœzliana × O. Pescatorei), and, as a primary hybrid, it may be considered as containing equal parts of both parents.

A second step occurred in the mating of Oda. Vuylstekeæ with Odm. ardentissimum, and in the result, known as Odontioda Royal Gem, there is still much evidence of the Cochlioda species, although in the aggregate less than formerly. A third stage was reached by crossing Odontioda Royal Gem with Odm. Harryanum, and recording the result as Odontioda Joyce.

This process of carrying forward the original Odontioda by crossing it with a pure Odontoglossum can be repeated a hundred times, yet according to our present system of nomenclature all the results, however much they may differ, will be classed as Odontiodas. Hence the question: When does a descendant of Cochlioda cease to be an Odontioda?

Probably more than one of our readers will suggest sorting out the seedlings according to the distinctive qualities of the flowers: those with a reddish tinge being called Odontiodas, and the white ones Odontoglossums. From a practical point of view this method is certainly much to be commended. For example, taking the third stage mentioned above, the seedlings having a reddish tinge would be recorded as Odontioda Joyce (Oda. Royal Gem × Odm. Harryanum), as formerly, and the white varieties from the same seed-pod would be classified as Odontoglossums.

All this appears simple until we come to the correct recording of this latter section, for if we regard them as Odontoglossums the name cannot be followed by an Odontioda parentage (Oda. Royal Gem × Odm. Harryanum), nor can even the same specific name in this case be adopted, for Odontoglossum Joyce has already been used for the hybrid between Odm. Olgar and Odm. Aireworth.

Masdevallia Peristeria.—One of the handsomest of the coriaceous Masdevallias, introduced by Messrs. Veitch from Colombia, in 1873, through Gustav Wallis, who met with it in the province of Antioquia. The labellum is very singularly coloured, being covered with numerous close-set amethystine papillæ, and the top of the column and the petals have a striking resemblance to the same organs of the flower of the Dove Orchid, Peristeria elata.

SEEDS OF THE BRITISH DACTYLORCHIDS.

NOTES on the Seeds of the British Dactylorchids is the subject of an article contributed to the Botanical Society and Exchange Club (vol. vi., pt. iii., page 432), by Mr. T. A. Dymes, F.L.S., who remarks: "With a strong belief in the conservative values of seeds in general, and with some slight practical acquaintance with them in other connections, I decided to put them into the witness-box, so to speak, in order to test the values of their evidence for elucidating the problems presented by the British forms of that section of the genus Orchis which is aptly known as Dactylorchids."

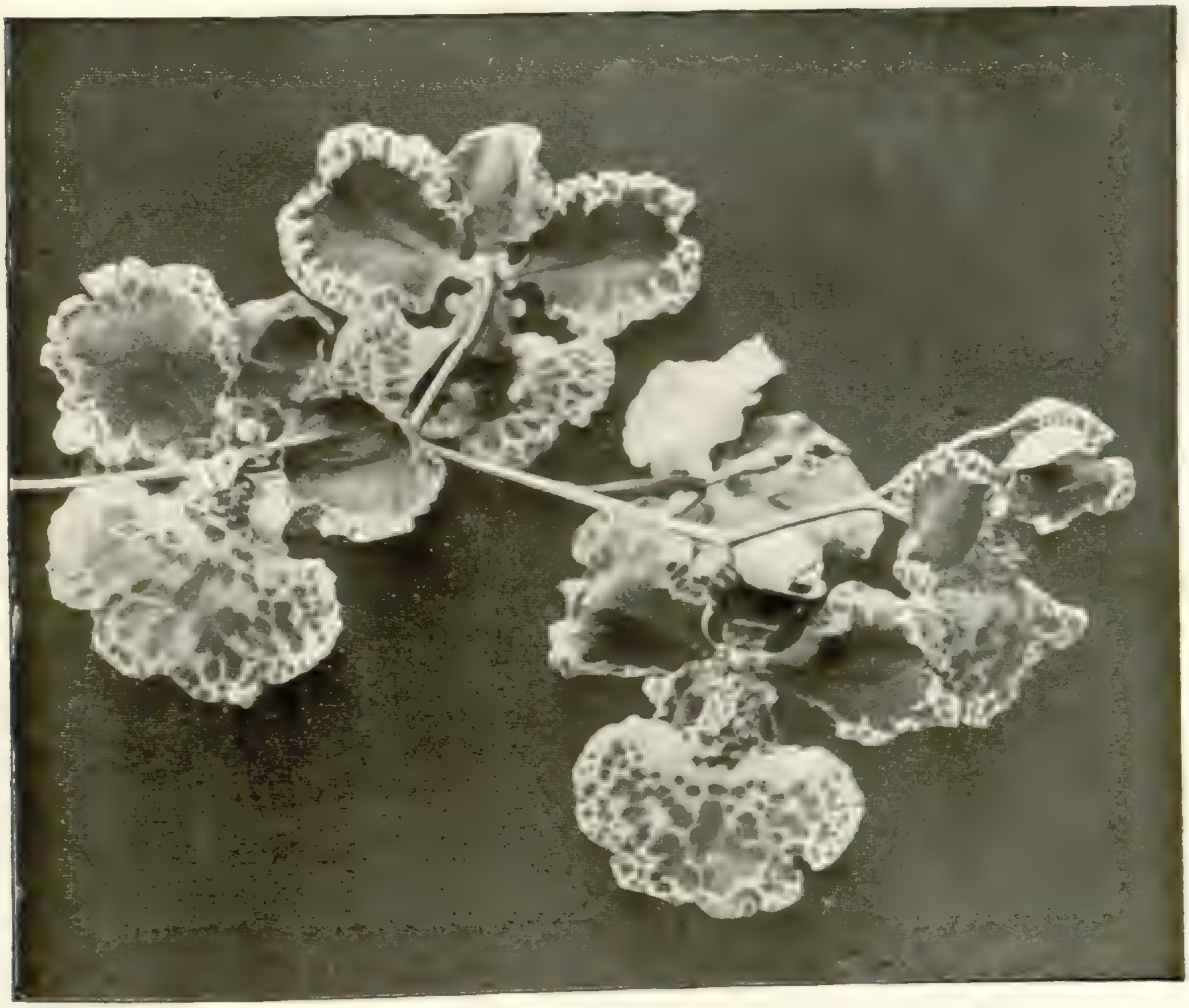
Concerning the Spotted Orchis, commonly known as O. maculata, and O. incarnata, the seeds are said to "differ from one another in several ways, for example, in colour, shape and size, as well as in the detals of both testa and kernal." Following detailed descriptions of these, the author remarks: "However slight they may appear in description, all these differences are so marked and so constant that, having once separated them, one could never mistake the seed of the one for that of the other, nor a testa without a kernal, or even a kernal without a testa, provided always that one is dealing with ripe seeds." The seeds of O. prætermissa, O. ericetorum, O. O'Kellyi and O. purpurella are also described.

In conclusion, Mr. Dymes says that a more extensive and detailed study of the seeds of six forms dealt with in this paper might possibly yield something useful to the systematic botanist. Orchis latifolia, L., remains for the author a suggestive mystery to be solved by the experimental geneticist rather than by the morphological or the field botanist. "I greatly hope, he adds, "that someone with the necessary knowledge and skill, patience and facilities, will take these plants in hand, and with the help of Mendelism, will tell us what they really are, building upon the sure and certain foundation of scientifically ascertained facts, derived from the plants themselves."

GOVENIA SUPERBA.—A coloured plate of this species is given in the *Botanical Register* (t. 1795), where it is remarked that it is so called in compliment to James Robert Gowen, under whose care were conducted many of the curious experiments upon cross fertilisation at Highclere, the seat of the Earl of Carnarvon. G. superba was originally discovered by Lexarza and L. Llave on the mountains near Valladolid, a town of Mexico. "It is especially remarkable for its stately appearance, the rich orange of its flowers, and the long time they continue to open. The specimen in Messrs. Loddiges' collection grows to the height of a man; that from which our drawing was made was furnished by Mr. Bateman, in February, 1834. It is found to bear the hottest and dampest stove, but like all the terrestrial species, requires a season of repose."

ONCIDIUM MANTINII.

THIS Oncidium bears the name of M. G. Mantin, Olivet, near Orleans, in whose collection there was at one time a notable example. It flowered in the year 1887, and was described by M. Godefroy Lebeuf as probably a natural hybrid between O. Marshallianum and O. Gardneri, or possibly O. sarcodes (*Orchidoph.*, 1888, p. 47). However, the general opinion is in favour of its being a hybrid between O. Marshallianum and O. Forbesii. It is said to have been imported from M. Binot, of Petropolis,



ONCIDIUM MANTINII.

Brazil, in an importation of O. crispum. The flowers are large, sepals and petals yellow, the central areas blotched with chestnut-brown, the lip clear yellow spotted with purplish-brown. Our illustration is of a plant that flowered some years ago with Messrs. Low & Co. A First-class Certificate was awarded to O. Mantinii at the Royal Horticultural Society, October 23rd, 1888, when exhibited by Mr. Baxter and Messrs. Veitch. Awards of Merit were granted to O. Mantinii Low's var., August 16th, 1910, and to O. Mantinii superbum, November 4th, 1902. It is a matter of regret that the cultivation of Oncidiums in European collections is not generally successful, for many of them produce brightly coloured flowers.

ORCHIDS AND AUTHORS.

TO the Orchidist the treatment accorded these lovely plants by the Authors of modern literature is often highly amusing, though there are times when such undeserved criticism is given them that one becomes annoyed. Such an occasion was that on which I read a story in a current magazine entitled "The Valley of Orchids;" in this, not content with discovering what he terms "a very heaven to the true collector," wherein are growing in one mass Odontoglossums, Cattleyas, Cypripediums and Aërides; he goes on to say "I believe Orchids are wicked . . . evil, alive. Parasites, and parasites are inspired by a degenerate instinct. I believe they are a sort of embodiment of evil, a materialisation of all the wicked instincts of this wicked forest." To the grower, even more than to the collector, such a valley as the author depicts would indeed be "a very heaven." How simple an art Orchid culture would become if one could merge the numerous sections together regardless of their atmospheric needs. I, for one, sincerely wish the writer of this story would let me into the secret of this wondrous South American valley, where acclimatisation is such an easy process.

Another well-known author in one of his works, a novel of the Southern Seas, says, "Pale golden and vermilion Orchids flaunted their unhealthy blossoms in the golden, dripping sunshine that filtered through the matted roof." And so it goes on, each one apparently taking this quite inoffensive flower to be symbolical of all the unknown evil, the veiled mystery of its jungle home.

Seeing these plants in the cleanly surroundings of modern cultivation one finds it difficult to find in their gorgeous, stately flowers the least suggestion of evil, and even allowing for the rank and sweltering conditions of the jungle, were can one find justification for such sweeping statements?

One novel I read sometime ago contained what purported to be a list of the wonderful plants in the hero's magnificent collection. To the uninitiated it was no doubt very convincing, though in reality, as far as my memory serves, those that were correct were in almost every case synonyms of species long since transferred to other genera. No doubt the author's information had been derived from some obsolete text book, for he mentioned among others on his list such names as Odontoglossum vexillarium.

In these days of commercial literature one cannot of course expect absolute perfection of detail, but of the author who feels these "maligned flowers" essential to the languorous and exotic scenery of his "Desert Island" romance, I would beg as a favour that he attend some horticultural exhibition and glance at the Orchids displayed there, for then I am sure he will feel compelled to explode this hackneyed idea of their unhealthiness,

and write of them with something of the spirit of admiration and appreciation of their beauty that we who grow them possess.

45, Lenton Road, The Park,
Nottingham. HAROLD RAVEN.

NEW OR NOTEWORTHY ORCHIDS.

THE third number of *Schedulæ Orchidianæ* is devoted to descriptions of New and Noteworthy Orchids, by Prof. Oakes Ames, of Boston, Mass, U.S.A. With one exception the new species are natives of tropical America. Several Central American species have been reduced to synonymy after a careful examination of type material. The descriptions have been prepared from herbarium material.

From the prefatory note we gain some interesting information regarding the Reichenbachian Herbarium. Reference is made under Epidendrum luteoroseum to specimens and drawings of Achille Richard's types which are to be found in H. G. Reichenbach's Herbarium in Vienna. "These specimens and drawings," states Mr. Oakes Ames, "represent some of the Mexican species described by Richard and Galeotti in 1845. It would seem that this precious material was loaned to Reichenbach by the Museum d'Histoire Naturelle of Paris. That Reichenbach intended to return this material to those who loaned it to him is indicated by the tracings he made from the coloured drawings of the habit and from the analytical drawings of the floral structure of types. The tracings are now mounted on the same sheets that bear the drawings, a few of them actually superimposed on the originals. The most charitable view to take of this extraordinary situation is the one which leads us to believe that Reichenbach's efforts to incorporate in his herbarium tracings of Richard's species were interrupted by death, and that if he had lived he would have returned the originals. But it is difficult to overlook the motives which prompted Reichenbach to have his herbarium, together with the loaned specimens, sealed for a quarter of a century; that is, for a sufficient length of time to deprive his contemporaries of its service and to interfere with the progress of orchidology. When death overtook the man who criticised Achille Richard's brevity, and who attempted to outlaw Richard's species, his last will and testament put under lock and key the evidence on which some of Richard's work was based. This is the explanation of the mysterious absence of many critical specimens and drawings from the Richard Herbarium in Paris."

The new species described or specially referred to by Mr. Oakes Ames belong to the following genera:—Stelis, 3; Pleurothallis, 3; Lepanthes, 3; Epidendrum, 9; *Zygopetalum*, 1; Bulbophyllum, 1; Telipogon, 1; and Ornithocephalus, 1. Reference is made to the *Orchid Review*, 1916,

vol. xxiv., p. 187, where under a note, "Orchids at Kew," it is stated that "Pleurothallis hamata, Rolfe, a native of Costa Rica, is blooming very freely." As this is the only published reference to the species that Mr. Oakes Ames has been able to find, a detailed description of the plant is now given.

The history of Epidendrum pentotis is given on pages 18-19 of this useful publication. After referring to Rolfe's account in the *Orchid Review*, vol. xvi., p. 189, and vol. xxii., p. 280, we read that this species is represented in Reichenbach's Herbarium at Vienna by about twelve flowers mounted on a single sheet. In 1915 Dr. Rudolf Schlechter proposed a new species, to which he gave the name Epidendrum Beyrodtianum (*Orchis* ix., p. 49, t. 4). Mr. Oakes Ames states that "On the evidence of Schlechter's diagnosis and plate published in *Orchis*, and on the evidence of drawings from the type, preserved in my herbarium, it would seem that Schlechter's species is conspecific with E. pentotis. It has the elongated pseudobulbs characteristic of the Heyde and Lux specimens from Guatemala, and flowers equal in size to those of E. pentotis as represented in Reichenbach's Herbarium. It is interesting to note that Schlechter distinguished his species, in part, from E. pentotis by means of its longer, more slender pseudobulbs, a distinction for which it is difficult to discover justification, as Reichenbach did not describe pseudobulbs or leaves. Furthermore, the type specimen of E. pentotis consists only of flowers and a sketch."

Reference is made to Epidendrum laterale exhibited by Mr. J. J. Neale at the Royal Horticultural Society, August 27th, 1912, and recorded (*Orchid Review*, xx., p. 280), as "a curious little plant bearing two spikes of green flowers from rudimentary growths, as in E. Stamfordianum." On the same day Mr. O'Brien brought the plant before the R.H.S. Scientific Committee, and remarked that the inflorescence is produced on a rudimentary pseudobulb, as in E. Stamfordianum (probably the only similar case), a peculiarity that seems to show that the normal mode of flowering is from the base of the mature pseudobulb. A Botanical Certificate was awarded to this plant. (*Orchid Review*, xx., p. 320). Mr. Oakes Ames states that "the first characterisation of the species that approaches a botanical description was published in the *Orchid Review* for 1920, p. 160. Here the species is treated in a very rambling style under the heading Epidendrum laterale, Rolfe, and we are informed that it is a native of Costa Rica." In 1918 Dr. Schlechter published Epidendrum Rousseauæ (*Beihefte Bot. Centralbl.* 36, *Abt.* 2, 407) from material collected in Panama by Mrs. Rousseau. Mr. Oakes Ames considers this to be identical with E. laterale, and concludes by stating that "as E. laterale was not properly characterised prior to 1918, it would seem that E. Rousseauæ is the name by which this curious species should be known."

NOTES ON THE SEGMENTS OF ORCHID FLOWERS.

(*Continued from page* 50.)

OUR last notes on the segments of Orchid flowers dealt with the outer whorl of the three sepals. Attention may now be directed to the inner whorl, which also consists of three segments, two being similar to one another and distinguished as petals, while the third is called the labellum and generally takes the form of a lip or pouch. A reference to page 47 will make clear the respective positions of the sepals (S), the petals (P) and the labellum (L), as also will the annexed figure of Odontoglossum citrosmum.

ODONTOGLOSSUM CITROSMUM.

It is of interest to note how in the various genera different segments receive the special attention of cultivators and breeders. In Cypripediums it is the upper segment of the outer whorl, while in Odontoglossums it is the petals, or lateral segments of the inner whorl. In Cattleyas all three segments, the two petals and the labellum, should be well developed in order to obtain special appreciation. All through the period when blotched crispums were in fashion, their value was mainly determined by the size of the petals and the amount of colour blotching thereon. If we look at the finest Odontoglossums of to-day it will be seen that the petals have been developed so that they almost meet one another in front of the upper sepal.

In Cattleyas the same development is manifest. Amateurs prize most the varieties having broad petals of thick texture. Even the beautiful C. Mossiæ is not perfect in this respect, for although the petals are broader than those of many other species of the genus, they have a drooping tendency. To remedy this defect Lælia pumila has been utilised by the hybridist, and although its flowers are comparatively small, the petals are flatly displayed and possess a thick texture that is frequently transmitted to the offspring. Among the fine hybrids that have been produced by combining the large sized petals of C. Mossiæ with the thick textured ones of L. pumila are Læliocattleya Momus, figured in the *Orchid Review*, vol. xxx., p. 323, and the *Orchid World*, vol. vi., p. 221. As a contrast we have only to look at hybrids of Lælia purpurata to witness how the narrow and frequently reflexed petals of this species are generally perpetuated.

Returning to species, we see in the plant known in gardens as Selenipedium caricinum that the two lateral petals are extended in ribbon-like style. The same thing occurs in S. caudatum to an even greater degree, a length of eighteen to twenty-four inches being by no means uncommon; an example is figured in the *Orchid World*, vol. iii., p. 182. But however much the petals of the above species exceed in length the average dimensions, there are examples to be found in which great width exists, among them being Cypripedium niveum and C. bellatulum.

SELENIPEDIUM CARICINUM,
With ribbon-like petals.

In the majority of Oncidiums the petals are comparatively insignificant, the expansive labellum being the most attractive segment. Vanda cœrulea affords an example in which the petals are twisted at their base, the back area being thus brought into view. In Oncidium Krameri and O. Papilio the two petals closely resemble the dorsal sepal, the lateral sepals in each case being very much broader and coloured like the labellum. In Renanthera coccinea the dorsal sepal and the two petals have a close resemblance, the lowest sepals being broader and differently coloured. While the petals of some species are often reflexed, those of Odontoglossum Harryanum project forward towards the column, so that it is generally necessary to hold them back before obtaining a full view of the flower. In primary hybrids of O. Harryanum this peculiarity is inherited in an undesired manner.

CYPRIPEDIUM NIVEUM.

(To be continued.)

ORCHIDS OF PANAMA.

ONE of the finest additions to our knowledge of Orchid species has been made by Mr. C. W. Powell, of Balboa, Canal Zone, Panama. For some years past he has collected Orchids in that locality and cultivated them in his garden, which is carried on entirely as a scientific proposition, no idea of commerce being entertained. In the year 1919, one of Dr. Schlechter's correspondents in Costa Rica called his attention to the considerable collection of Orchids that had been made by Mr. Powell, and advised him to get into communication with him. Mr. Powell replied that arrangements had already been made with Mr. R. A. Rolfe of Kew, but he would be pleased to provide duplicates of the various items, so far as was possible. Unfortunately, Mr. Rolfe was absent from Kew on account of ill-health, and his death in April, 1921, prevented any special attention being given to the many novelties that awaited description.

Mr. Powell then requested Dr. Schlechter to take over the elaboration of his discoveries. This work afforded him great pleasure, for the reason that among the Orchids of Panama not only were many novelties to be expected, but also many of Warscewicz's findings were awaiting re-discovery and enlightenment. The first consignment of dried flowers was splendidly arranged and gave much satisfaction, but unfortunately, the vegetative parts of the plants were entirely missing, due, says Mr. Powell, to the fact that Rolfe had stated that dried flowers would be sufficient. However, Mr. Powell willingly supplied the required material, and most of the specimens are now quite complete. The consignments arrived regularly week after week, their neat arrangement and completness being noteworthy features.

The greater part of the previously known Orchids of Panama has been re-discovered by Mr. Powell, and there are, in addition, a considerable number of new species, which have not previously been known as from Panama, though perhaps from the neighbouring territory. Of equal interest to the new species is the re-discovery of a whole series of species which had originally been discovered by Von Warscewicz, but have never since been found. Consequently Mr. Powell's collections are of extreme importance.

During recent years an overwhelming mass of Orchid material has accumulated with Dr. Schlechter, particularly from Costa Rica, and as the beginning of his "Contributions to the study of the Orchids of Central America" a full account of Mr. Powell's discoveries that have been determined up to November, 1922, has just been published under the title *Orchidaceæ Powellianæ Panamenses*. Dr. Schlechter hopes in his second contribution to be able to handle several of these Costa Rican collections, which are not only rich in novelties, but in plants of geographical interest,

for they contain a whole range of types that formerly were designated as purely Andine. This first contribution, he remarks, is of importance for the reason that while we possessed only a superficial knowledge of the Orchid flora of Panama, the number of species now known to exist in this region is almost doubled.

The first enumeration of Orchids was given by Dr. B. Seemann in his "Flora Panamensis," in the reports of the Herald Expedition, where mention is made of 104 species for Panama. In Dr. Schlechter's list of Orchids from Central America (1918), 117 species are enumerated. Up till now Mr. Powell has collected about 260 specimens, representing 60 genera and 184 species. When we state that no less than 75 of the latter have proved to be new, it will be apparent to all how very important and praiseworthy is his contribution to Orchidology. Not only are there plants which bear flowers of considerable attractive qualities, but there are others which produce blooms hardly larger than a pin-head.

Among the genera included in his collections, the following 19 are stated by Dr. Schlechter to be new to the flora of Panama :—

Sarcoglottis.	Cattleya.	Leucohyle.	Liparis.
Osmoglossum.	Lælia.	Restrepia.	Govenia.
Sigmatostalix.	Gongora.	Isochilus.	Hexadesmia.
Campylocentrum.	Nidema.	Coryanthes.	Camaridium.
Dimerandra.	Ionopsis.	Leochilus.	

On the other hand, the following genera are still missing :—

Selenipedilum.	Fregea.	Scaphosepalum.	Kefersteinia.
Rhyncholælia.	Chysis.	Pescatorea.	Macradenia.
Trichocentrum.	Corymbis.	Cœliopsis.	Microstylis.
Mesospinidium.	Acineta.	Triphora.	

It is expected that many of these latter will ultimately be found, for Mr. Powell has already come across Selenipedilum, Chysis, Cœliopsis, Pescatorea and Acineta, but has not been able to contribute herbarium specimens.

The number of species that have more or less disappeared since their first discovery, mostly by Von Warscewicz, and have not again been found, is rather large. Dr. Schlechter mentions Habenaria Warscewiczii, Masdevallia Livingstoneana, Epidendrum Oerstedii, Brassavola lineata, Cycnoches Dianæ, Cycnoches Warsceswiczii, Catasetum bicolor, Lycaste brevispatha, and a whole series of Oncidium species.

The genus containing the most species is Epidendrum with 33, this number being far above all others, and of these no less than 12 are new. Oncidium follows with 15 species, four of which are certainly new. Pleurothallis contains 14 species, nine being already determined as new, while Maxillaria has 11 species, and of this number six are new.

In the classification made by Dr. Schlechter in 1918 of the Panama Orchids, Epidendrum with 18 species stands at the top, followed by Oncidium with twelve species, while of Pleurothallis only three were known. Now we have an entirely new picture unfolded before us. At the above date it was possible to name 54 genera as appearing in the Panama territory, one of which was subsequently withdrawn, but through the researches of Mr. Powell no less than 19 more have been added, bringing the total number of genera up to 72.

Dr. Schlechter states that so far as he can observe, the territory covered by Mr. Powell's collection does not extend above 5,000 feet on the Chiriqui. But it is to be assumed that above this limit many more species will be found. According to the statement of Von Warscewicz, there must exist at an altitude of from 7,000 to 8,000 feet a particularly luxuriant Orchid flora. At this altitude there exists the not yet re-discovered Cycnoche-aureum, Sobralia Warscewiczii, Oncidium bracteatum, Oncidium Warsce-wiczii, and probably also Fregea amabilis.

From a botanical standpoint, the forests extending between the Canal and the boundary of Colombia are unopened territory. They will undoubtedly disclose many new species, as they have remained preserved in their primitive state. It is expected that many inhabitants of the soil, especially species of Habenaria and the Spiranthinæ, and other terrestrial Orchids, will be found, the comparatively great lack of which has already been noted in the Panama flora.

The field of Mr. Powell's research covers mainly the vicinity of the City of Panama, which, in contrast to the Republic, is always designated as Panama City, and further on to the Chiriqui territory at an altitude of about 5,000 feet. With the single exception of Oncidium Isthmi, all the species have been collected by Mr. Powell.

Following an analytical table of the various genera and species, Dr. Schlechter concludes his introductory remarks by stating: "The foregoing enumeration will not form the conclusion of Mr. Powell's activities in Panama. New consignments are being constantly received from him, and I hope that as soon as he considers that a certain limit has been reached we may be able to publish a comprehensive work on the Orchid flora of Panama. By that time there may be found over there other interested parties who will assist in furthering the work. There is still much to be done. Above all it will be necessary to thoroughly explore the Chiriqui above the 5,000 foot level, and also to pay visits to the territory situated between the Canal and the boundary of Colombia, and, finally, to devote special attention to the terrestrial Orchids in the soil of the forests and the savannas. We cannot sufficiently thank Mr. Powell for the devoted activities of his own investigations, which, in spite of his advanced years, he has manifested.

Towards the Orchidology of Panama he has accomplished more than any of his predecessors. Let us hope he may be permitted to continue his activities for yet a long time with the same success as heretofore."

Among the many new species discovered and now described, we note Sobralia Powellii, one of the most beautiful of the genus, the flowers resembling those of S. macrantha, but superior in coloration. Sobralia Rolfeana is named in honour of the late Mr. Rolfe, who intended paying a visit to Panama for the express purpose of studying the Orchids. At first this species was taken for S. leucoxantha, but it has several important distinctive points. Mr. Powell considers it one of the finest of all the Sobralias.

As may be expected, there is an extensive series of Mormodes varieties. Many forms of M. atropurpurem are described, also of M. Hookeri and M. igneum. Another new species is Oncidium Powellii, a magnificent example of the genus. It is nearest to anthocrene and O. panduratum, but differs from both in the shape of its lip. Sepals and petals brown, trimmed with yellow, lip yellow with brown base. Odontoglossum Powellii belongs to the sub-genus Rossioglossum, in which are placed the four species O. grande, O. Williamsii, O. Schlieperianum and O. Insleayi.

Regarding Stanhopea Wardii var. amœna, the only representative of the genus collected, Mr. Powell gives the following description :—"Sepals and petals lemon-yellow dotted with purple on inside, sepals more thickly than petals; hypochile of lip orange with large maroon spots on each side (like eyes), two maroon stains on top at each side of median line in centre; mesochile lemon-yellow with dots smaller than on sepals and petals; column with transparent greenish sides and a fleshy green rib down the centre, a very few spots on outer side."

When Dr. Schlechter constructed a sub-genus of Odontoglossum under the name Osmoglossum (*Orchis*, 1916, p. 162), the two species placed therein were O. pulchellum and O. Egertoni. Now a third species is added in the new Osmoglossum acuminatum. Govenia Powellii is a new terrestrial species, bearing two leaves, flowers produced at the apex of stalk, which continues to grow. Sepals and petals white, the latter stained with rose on the basal half. The dorsal sepal and petals are close together. Lip yellow, with purple dots around the point.

Other specially striking species are Pleurothallis Powellii, P. Hunteriana, Epidendrum Hunterianum, E. porphyrophyllum and Ornithocephalus Powellii.

ROYAL HORTICULTURAL SOCIETY.—The Chelsea Flower Show will be held on May 29th, 30th, and 31st. The Autumn Show will take place at Holland Park Hall on October 2nd, 3rd, and 4th.

CYPRIPEDIUM CALLOSUM DISEPALOUS.

THE accompanying figure of Cypripedium callosum shows a normal flower on the right and a disepalous form on the left. In connection with "Notes on the Segments of Orchid Flowers," page 47, where the sepals are described, this disepalous form is of interest. The ventral or lower sepal is equal in size to the dorsal or upper sepal, and is almost similarly marked with vertical lines of colour. This particular example appeared some years ago in Mr. C. C. Mann's collection at Gourock, and represents an occurrence that is occasionally seen in other species and hybrids of the genus. At the R.H.S. meeting, November 10th, 1903, Cypripedium insigne bisepalum was exhibited by Mr. G. F. Moore; the

CYPRIPEDIUM CALLOSUM, DISEPALOUS ANP NORMAL.

lower sepal of this was enlarged, and partly white, thus somewhat resembling the upper sepal. C. Leeanum grandisepalum may also be recalled, for this was remarkable in having the lower sepal developed like the dorsal; it was exhibited by Mr. G. W. Law Schofield at the R.H.S. January 9th, 1900. Although it is uncertain whether this abnormality is in all cases permanent, there are a few examples known that produce such flowers every year, one of the best being Cypripedium Ballet Girl in the collection of Lieut.-Col. Sir George Holford. It is of unknown parentage, but in size and shape strongly resembles a variety of Leeanum. Another remarkable example in the same collection is Cypripedium Muriel II. var. amethystinum, the lower sepal of which much resembles the upper one, and has the central portion green from base to apex. When flowering in 1921 all three blooms were precisely similar.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

ALL Cultivators of Orchids will derive a considerable amount of pleasure and interest during the present month by looking through their collections and noting how quickly a number of different species and hybrids have responded to the influence of the increased light and sun-heat. A great many of the plants have commenced to grow, new roots are pushing rapidly through the soil, and fresh flower spikes appear every day. The growing season of the majority of the plants has begun, and the conditions essential for their development must be given attention. Miltonias are among the numerous plants that are now growing freely and pushing forth flower spikes from their partly developed pseudo-bulbs; at this stage every precaution must be taken against thrip insects, which if not kept in check will attack the tender flower buds, causing them to become deformed. The foliage should be syringed on bright days, which will not only keep down thrips, but will also be beneficial to the growth of the plants. The syringing should be done sufficiently early in the day for the foliage to become dry before night arrives. The house should receive frequent mild fumigations with a reliable vapourising Compound. Where the flower spikes are not too far developed the plants may be dipped overhead once every two weeks, in a weak solution of quassia extract, at the rate of half a pint of the quassia to two gallons of rain water, after dipping, lay the plants on their sides to drain, in such a position as to prevent the solution coming into contact with the roots.

CALANTHES.—The deciduous Calanthes, Veitchii, vestita, Harrisii, and others of this section, will need potting when the new growths are a few inches high, and are about to emit fresh roots from their bases. Previous to repotting, turn the plants out of their pots and remove all the old rooting materials, and shorten the roots, leaving just sufficient length to hold the pseudo-bulb firm in the soil. Thoroughly cleanse the plants of scale insects. In all these operations take care not to injure the young shoots. Remove the back pseudo-bulbs, leaving those of the previous year. As regards repotting, the usual practice is to plant the largest size pseudo-bulbs singly into five or six inch pots, but if house room is limited, five or six moderate sized bulbs, or three or four of the large ones, may be potted in seven inch pots. Perfect drainage is essential, the pots should be about half filled with clean crocks, covered with a thin layer of fresh turfy-loam, or rough sphagnum moss: a suitable compost consists of good fibrous-loam broken up rather roughly and the earthy particles shaken out, some chopped Osmunda fibre, a little dried cow dung crushed small, some bone meal, and add sufficient crushed crocks to render the whole porous. These materials

should be mixed well together. In repotting press the compost with moderate firmness around the base of each pseudo-bulb, and keep the soil about an inch below the rim of the pot. After repotting the plant will require little or no water until the young roots have developed well into the compost and have grown near the sides of the pots, when it should be gradually increased. When the soil is well filled with roots, copious supplies will be needed all through their season of growth. The plants should be grown in plenty of heat and atmospheric moisture, and not be exposed to too much bright sunshine. The back pseudo-bulbs may be employed to increase the stock; arrange them on a layer of sphagnum-moss in a shallow receptacle, and place them in a warm, moist house; they will quickly produce new growth, when they may be potted and treated in a similar manner to the older examples.

Catasetums, Cynoches and Mormodes.—After a long decided season of rest these Orchids are now commencing to grow afresh and should receive attention for repotting. Shake the plants out of the old compost, cut away all decayed parts, and pot the plants each season in receptacles of moderate size only, for overpotting is injurious to them; plenty of drainage is essential. Osmunda fibre is the best rooting medium, this should be chopped up in rather small pieces. The most suitable receptacle is the ordinary flower pot, with three holes just under the rim, and wire handles attached. suspend the plants in the warmest house, and grow them as quickly as possible, giving them very similar treatment to the Calanthes.

Dendrobiums.—The species and numerous hybrids of the Dendrobium nobile type commence to make new growth as they pass out of flower. They quickly emit new roots from the base of the young growths, when they are a few inches high, and those that need repotting should then be attended to. Ordinary flower pots or pans without side holes are the most suitable receptacles. These should be just large enough to hold the plant comfortably. Dendrobiums root freely in Osmunda fibre chopped rather small, and fresh sphagnum moss. When repotting well-established plants that have filled their pots with roots it may be difficult to turn them out without causing injury to the roots, and in such cases break the old pot and remove it in small portions. If the old soil is decayed pick out as much of it as is practicable, cut away the useless back pseudo-bulbs, leaving three behind each leading joint. Pot rather firmly, and, when finished, the base of the plant should be a little below the rim of the pot. For some time after root disturbance water should be applied with great discretion, for there is a danger of both the young roots and growths damping off if too much moisture is applied. Healthy specimens that have ample pot room, and the compost in good condition, should have a little of the old materials removed from between the surface roots and replaced by new. The old

pseudo-bulbs that have been taken from the plants, may be utilised for the purpose of increasing the stock if desired. They should be labelled and placed in a warm house for a week or two to dry. They may then be cut up to a single eye that has not produced a flower bud, leave rather more of the stem at the bottom to insert in the compost, in order to keep the cutting in an upright position, without covering the dormant eye. Use four-inch pots, half filled with clean crocks, and fill up to the rim with chopped sphagnum-moss and silver sand. When the young shoots are about an inch in length they should be potted up singly in small pots. Dendrobiums should be grown in the warmest house, with an abundance of light at all times, affording only sufficient shade to prevent the leaves from scorching.

MAXILLARIAS.—Certain species of Maxillaria, including the well-known M. venusta, M. candida, M. Mooreana, and M. picta are becoming active at the roots, and plants that require fresh rooting materials should be given attention. Those mentioned are best grown in pots or pans, which should be well drained. When potting, press the compost firmly around the base of the plants. After repotting, they should be placed in a shady position in the house, and watered carefully, the water should be poured around the inner edges of the pots so that it may not lodge in the young growths. Such species as M. Sanderiana and M. Lindenii, that flower at this season of the year, are best grown in teak-wood baskets, as the flower-spikes sometimes push downward through the bottom of the receptacle; for this reason crocks should not be employed for drainage. These two species, together with M. Hubschii, should not be potted until after they have passed out of flower. Osmunda fibre and sphagnum-moss form the best rooting medium, and the plants grow well in the coolest part of the intermediate or the warmest end of the Odontoglossum house.

ODONTOGLOSSUMS.—Plants of Odontoglossums that have failed to produce flower-spikes, or that have recently passed out of flower, and in which the young shoots have grown two or three inches in height, may be repotted. But those with sufficient rooting space, and compost that has not decayed, are best left until the autumn. Other plants that have outgrown their pots, and have the leading shoots over the edge, should be turned out and some of the back pseudo-bulbs removed; the plants may then be potted up again in receptacles of a similar size. Those plants that have recently had their flower scapes removed, and have not yet commenced to grow afresh, should be induced to take a short rest, and only given sufficient water at the roots to prevent the bulbs from shrivelling.

CYPRIPEDIUMS WANTED. — Our advertisement pages contain an announcement that Cypripediums suitable for high-class cut-flower trade are required in Guernsey.

TRICHOPILIAS.

THE genus Trichopilia was founded by Lindley on the Mexican species T. tortilis, the generic name being derived from the hairy-like cap at the apex of the column. The geographical area which they inhabit is somewhat limited; they are found on the Andes of South America at a moderate elevation, from the equator northwards to Caracas, and through Costa Rica into southern Mexico. In vegetative habit they are dwarf plants, the pseudobulbs being more or less crowded on account of the short rhizome. The bulbs are often elongated and nearly flat, with a single leaf, the latter rather leathery in texture and dark green. The flower spikes usually pendulous. As regards the floral segments, the sepals and petals are nearly equal and similar, narrow in proportion to their length, and in a few species spirally twisted. The lip is large, more or less funnel-shaped, but rather obscurely so in T. sanguinolenta and T. hymenantha, and projecting forward mostly at a right angle to the other segments.

TRICHOPILIA FRAGRANS.

Trichopilias are by no means difficult subjects to cultivate, a fibrous compost and shallow pots, or pans, with a fairly light place in the intermediate house suit them admirably. T. fragrans, however, is best grown in the Odontoglossum house, as it comes from a cooler climate.

T. coccinea is one of the best of the genus. It is sometimes confused with T. marginata, but differs in having longer, narrower, and more compressed pseudobulbs, longer and narrower leaves, as well as in other points. It was discovered in Central America by Warscewicz in 1849. Sepals and petals about 2½ inches long, more or less twisted, brownish green; lip, 3 inches long, four-lobed, the basal lobes rolled over the column into the form of a wide-mouthed funnel, white externally, deep carmine-crimson within. Several Trichopilias that have been called species are more properly termed varieties of T. coccinea; they are crispa, lepida, and marginata.

T. fragrans was originally discovered by Hartweg about the year 1841 near Popayan in southern Colombia. The flowers are very fragrant, pure white, with a circular yellow spot near the base of the lip, the sepals and

petals sometimes tinged with green. Sepals and petals nearly uniform, about 2½ inches long, with undulated margins; lip clawed, the blade large, expanded, obscurely four-lobed. The variety nobilis has shorter and thicker pseudobulbs; flowers a little larger with the sepals and petals always pure white, the blade of the lip a little broader, and with the yellow spot enlarged. T. candida is a synonym of T. fragrans.

T. Galeottiana was discovered by Galeotti, an Italian explorer, some time before 1845, growing on oaks at an elevation of 3,000 feet near Teotaleingo in Mexico, Sepals and petals similar, pale tumeric-yellow, lip adnate to the column at the base, the blade four-lobed, light yellow with a darker yellow disc that is sometimes spotted with red. Column greenish.

T. hymenantha is easily distinguished by the absence of pseudobulbs, by its long narrow fleshy leaves and by its nearly flat labellum. Flowers nearly 2 inches in diameter, sepals and petals similar, light straw-yellow, but sometimes white; lip broadly oval, fringed at the margin, white sparingly spotted with deep claret-red and covered with crystal dots. This Trichopilia was first discovercd by Schlim in the eastern Cordillera of Colombia near Ocana, and most likely introduced by him.

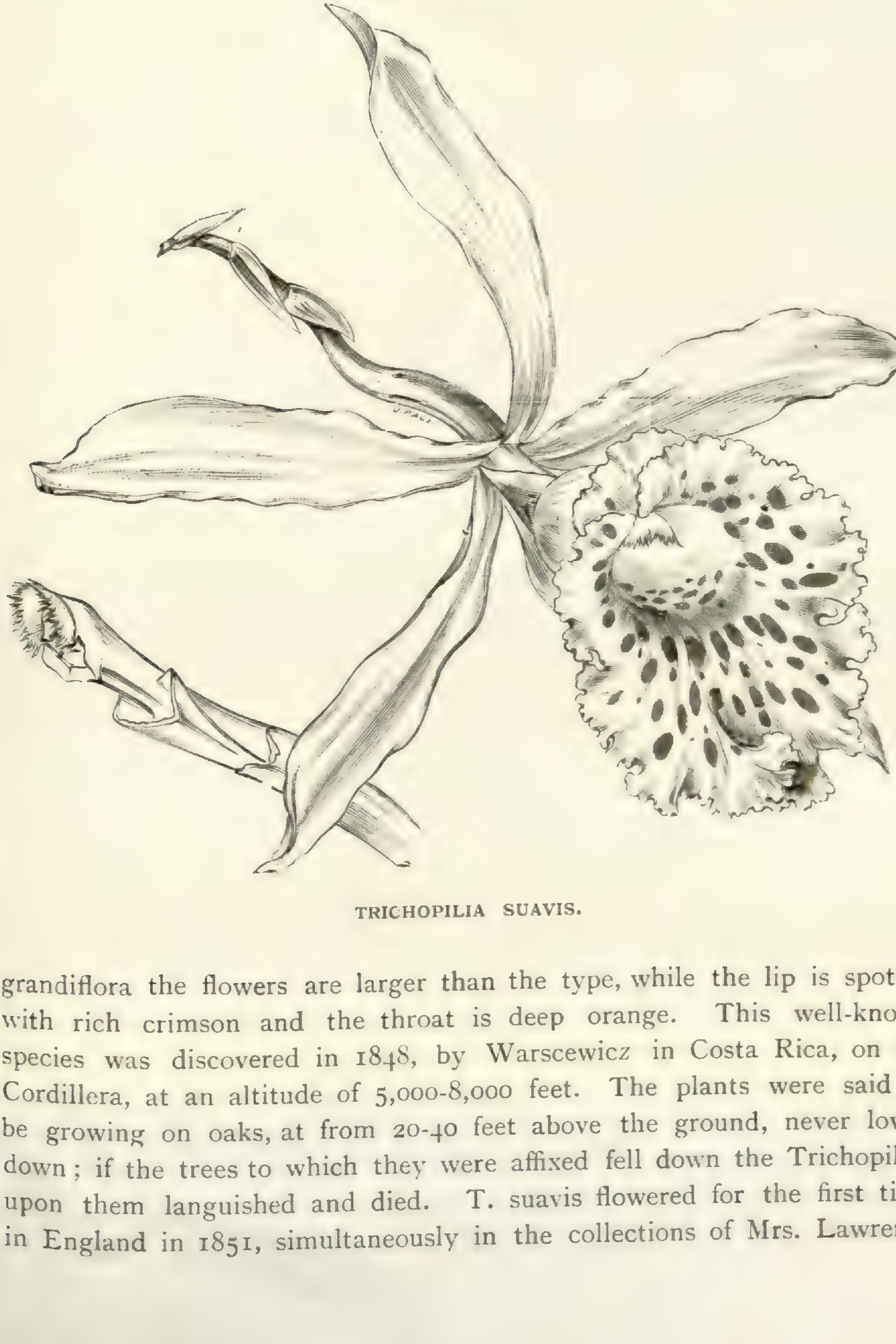
T. laxa has much compressed pseudobulbs, 2-3 inches high, leaves 8-12 inches long, and scapes 6-12, flowered. Unfortunately, it does not possess any attractive colours. Sepals and petals pale rose with a greenish median band, lip white, obscurely three-lobed, the basal lobes rolled over the column. It was discovered by Hartweg in the same locality as T. fragrans, about the year 1841.

T. rostrata was discovered by one of Messrs. Low's collecters In 1866, and introduced from Colombia a few years later. Pseudobulbs much compressed 4-6 inches high, leaves narrow, 4-7 inches long, scapes sub-erect, sepals and petals light yellow-green, twisted, lip white with some yellow markings on the disc, spotted and marked with orange in the tube.

T. sanguinolenta has compressed pseudobulbs 1-2 inches high, leaves 4-7 inches long, scapes sub-erect, sepals and petals olive-green, barred and spotted with chestnut-brown, the spots on the petals ocellated; lip oblong, two-lobed at the apex, white, spotted and marked on the basal half with red-purple. This interesting species, also known in gardens as Helcia sanguinolenta, was discovered by Hartweg on the Ecuadorean Andes in 1841. He sent it with other Orchids from the same locality to the Horticultural Society of London, in whose garden at Chiswick it flowered soon after.

T. suavis also has much compressed pseudobulbs, about 3 inches high, leaves 4-9 inches long, sometimes more. Flowers large, fragrant, the sepals

and petals cream-white, sometimes spotted with pale rose; lip having the margin crisped, obscurely three lobed, the basal half white, convolute over the column into the form of a wide-mouthed funnel, the apical half more or less spotted and blotched with rose-pink. The variety alba bears flowers entirely white, except the yellow spot on the disc of the lip which is paler than in the spotted forms. In the variety



TRICHOPILIA SUAVIS.

grandiflora the flowers are larger than the type, while the lip is spotted with rich crimson and the throat is deep orange. This well-known species was discovered in 1848, by Warscewicz in Costa Rica, on the Cordillera, at an altitude of 5,000-8,000 feet. The plants were said to be growing on oaks, at from 20-40 feet above the ground, never lower down; if the trees to which they were affixed fell down the Trichopilias upon them languished and died. T. suavis flowered for the first time in England in 1851, simultaneously in the collections of Mrs. Lawrence

at Ealing, and Mr. R. S. Holford at Westonbirt, also in the nursery of Messrs. Loddiges at Hackney.

T. tortilis is the original species of the genus that was founded by Lindley in 1836. It occurs in several localities in Mexico. The pseudo-bulbs are clustered and compressed, about 2 inches high, leaves 5-7 inches long. Sepals and petals narrow, spirally twisted, dull pale rose with a broad margin of light yellow-green ; lip white, blotched and spotted with light red-brown, broadly oblong when spread out, four-lobed, the basal lobes rolled over the column, the anterior lobes spreading, with crisped and undulate margin.

GHENT QUINQUENNIAL EXHIBITION.—The following arrangements have been made for the judges attending the forthcoming exhibition at Ghent :—Friday, April 13th, 2 p.m., meeting of the juries; 5 p.m., refreshments ; 8 p.m., Gala Performance at the Théâtre Royal. Saturday, April 14th, 10 a.m., official opening of the Exhibition by Their Majesties the King and Queen of the Belgians, accompanied by the Duke of Brabant; 5 p.m., grand banquet offered to members of the juries ; 9 p.m., grand ball given by Comte de Kerchove, Governor of the Province. Sunday, April 15th, 11 a.m., inauguration of the monument to the late Comte de Kerchove ; 12 noon, reception by the Chambre Syndicale des Horticulteurs Belges at the Chamber of Commerce ; 8 p.m., official reception by the Municipality of Ghent at the Town Hall. Monday, 16th, 8 a.m., departure by special train to the Royal Palace at Laeken, afterwards travelling by motors to the principal sights of Brussels ; 2 p.m., drive through the Forest of Soignes ; 3 p.m., visit to the Park and Colonial Museum at Tervueren ; 4.30 p.m., motor drive to the Botanic Garden at Brussels ; 6 p.m., leave Brussels for Ghent.

ODONTOGLOSSUM LAUDATUM.—Many of the blotched crispums of years ago were natural hybrids between that species and O. luteopurpureum, and to-day recognised as varieties of Wilckeanum. The blotching derived from luteopurpureum was the principal feature of attraction, although along with it also came much of the yellow ground colour, frequently giving a cloudy appearance to the flower. One or two rare instances were seen in which the blotching occurred on a white ground, and the effect was then much more pleasing. In the early days of artificially produced Odontoglossum hybrids, a fine result was produced in O. laudatum (Wilckeanum × ardentissimum), first raised by Mons. Vuylsteke in 1907. During the last few weeks an excellent variety has been in flower in the collection of Geo. A. Wood, Esq., of Harrogate. The large flower has all the segments handsomely blotched with brownish-red on a white ground, the spiny crest on the base of the labellum strongly indicating the luteopurpureum influence.

DENDROBIUM WARDIANUM.

The above photograph shows well-flowered plants of this popular species as they were cultivated some years ago in the collection of the late Mr. O. O. Wrigley at Bridge Hall, Bury. The centre plant carried about 172 flowers on 9 growths, while one of the growths on another plant measured 39 inches.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassolæliocattleya Asmodia ...	Blc. Agamedes × Bc. Mrs. J. Leemann ...	Charlesworth.
Brassolæliocattleya aurifera	Lc. Creusa × Bc. Mrs. J. Leemann ...	Charlesworth.
Brassolæliocattleya Mossmaniana ...	Bc. Mrs. Leemann × Lc. Firminii ...	J. P. Mossman.
Brassolæliocattleya Salmono ...	Bc. Mrs. J. Leemann × Lc. warnhamensis	J. P. Mossman.
Calanthe Rosabelle	Bryan var. Wm. Murray × George ...	B. J. Beckton.
Cattleya Rothmos	Lord Rothschild × Mossiæ	McBean.
Cattleya Mossmaniana	Trianæ × Alfred Dimmock	J. P. Mossman.
Cymbidium Adonis	Pauwelsii × Coningsbyanum	Sanders.
Cypripedium General Degoutte ...	Earl of Tankerville × Mrs. F. W. Ashton	A. Hanmer.
Cypripedium Horus	insigne × memoria Jerninghamiæ ...	Mrs. Bruce & Miss Wrigley
Cypripedium Phantasy	Glorita × Actæus	Flory & Black.
Cypripedium Pioneer	aurensis × Desdemona	P. Smith.
Cypripedium Scarab	Thompsonii × Mrs. Cary Batten	Mrs. Bruce & Miss Wrigley
Cypripedium Senator	Gladiator × Lord Wolmer	Flory & Black.
Cypripedium Zoot	Waterloo × Earl of Tankerville	Mrs. Bruce & Miss Wrigley
Dendrobium Miss Florence E. King ...	The Gem × nobile	F. J. Hanbury.
Læliocattleya Aethiopian	bletchleyensis × Aphrodite	Sanders.
Læliocattleya Lumissima	Lc. luminosa × C. Lueddemanniana ...	J. P. Mossman.
Læliocattleya Minima	C. Mendelii × Lc. Ophir	Mrs. Bruce & Miss Wrigley
Læliocattleya Mossmaniana ...	Lc. Orion × C. aurea	J. P. Mossman.
Læliocattleya Triaureole	Lc. Aureole × C. Trianæ	J. P. Mossman.
Læliocattleya Yellow Dwarf ...	Lc. Oriens × L. Cowanii	Mrs. Bruce & Miss Wrigley
Odontioda Adela	O. percultum × Oda. Meteor	Charlesworth.
Odontioda Cornelia	Oda. Diana × Oda. Madeline	Charlesworth.
Odontioda Naomi	Oda. Vuylstekeæ × O. Nathaniel ...	Charlesworth.
Odontioda Red Dragon	Oda. Mars × O. Clovis	C. J. Lucas, Esq.
Odontioda Vedas	Oda. Bradshawiæ × Oda. Felicia ...	Charlesworth.
Odontonia Baroness Schröder ...	M. Bleuana × O. The Czar	Charlesworth.
Rolfeara Queen Nefertiti	Sc. Thwaitesii × Bc. Ilene	Mrs. Bruce & Miss Wrigley
Sophrocattleya Octavia	C. Octave Doin × Sc. Doris	Mrs. Bruce & Miss Wrigley
Vuylstekeara Fascination	Oda. Feronia × M. Bleuana	Charlesworth.

CYPRIPEDIUM PIONEER.—At the meeting of the Manchester Orchid Society held on February 15th, an Award of Merit was given to Cypripedium Pioneer var. Alpha, exhibited by Philip Smith, Esq., Haddon House, Ashton-on-Mersey, Manchester (gr. Mr. E. W. Thompson). The original Cyp. Pioneer received an Award of Appreciation from the same Society in 1921. The parentage is given as *Zoe* (aureum × Hitchinsiæ) × Desdemona (Alcibiades × Mrs. Cary Batten), but no record of the naming of a hybrid between aureum and Hitchinsiæ can be traced until the appearance of Sanders' List of Hybrids in 1921, in which this cross is recorded as C. aurensis, 1920. As this is apparently the first published record, the name should read C. Pioneer (aurensis × Desdemona). From Mr. Thompson we have received a flower of the variety Alpha, a charming Cypripedium in which the large dorsal sepal is orbicular in shape, white, stained at the base with light yellowish-green, and having vertical lines of rose-purple dotting; the other organs are of a clear buff-yellow, tinged with green, and prettily lined and dotted with brownish-purple.

WHEN TO RE-POT ODONTOGLOSSUMS.

THE cultivators of years gone by used to re-pot their Odontoglossums in the autumn months, a season when root action was most active in the majority of the plants then grown. In those days there were only species to consider, and under the conditions then existing in Orchid houses that method was probably the best. But in present-day collections, when nearly all the Odontoglossums are hybrids possessing a much stronger constitution, the old regulations have been done away with, and re-potting is carried on in nearly every month of the year. The same remarks apply to Odontiodas, and to other hybrids in which the genus Odontoglossum is concerned in the parentage.

Probably the greatest mistake that an amateur can make is to take in hand a batch of plants and re-pot every one, no matter whether they are in active growth or not. When the new growth is about two or three inches high new roots will be seen working their way through the compost in search of nutriment, and this is a favourable opportunity for supplying fresh material. The re-potting should not be delayed, for the new roots are brittle and easily broken. A glance over the plants every few days will soon detect any that are making new growths, and if these can be placed together better attention can then be given them.

Sometimes a new growth will start away before the last-made bulb has completed its flower spike, when it is a difficult question for the amateur to decide whether he should re-pot at once or wait until the following season is over. This is a matter that can only be satisfactorily answered by knowing all the conditions. Cultivators who enjoy a favourable climate never miss the opportunity of potting a plant whenever necessary, no matter whether the flower spike is being produced or not, for so long as the old mass of compost is not unreasonably torn to pieces the plant benefits quickly from the additional supply of nutriment contained in the new compost.

Let us consider a plant with a new growth from which roots are being formed and just ready for re-potting, but at the same time producing a flower spike with buds that may not open until three or four weeks' time. If re-potting is delayed until this flower-spike has been cut the roots will have penetrated too far into the old compost to allow much disturbance to take place, and the plant is thus forced to remain in its old worn-out compost until another season arrives. The result is a rapid loss of vigour, with smaller bulbs. With plants carrying flower spikes, and at the same time in a suitable condition for re-potting, amateurs will be well advised to carefully remove any of the decayed compost, replacing it with new, and to leave untouched all sound portions of the old material. If a larger pot is required there will be a better opportunity of adding fresh compost without

disturbing the old ball of compost and roots, but care should be taken that Orchids are not over-potted. It is a great mistake to think that the larger the amount of compost surrounding the plant so much the finer will be the results.

Robust plants rarely suffer when producing a flower-spike at any time of the year, but those that are in an impoverished condition should have the spike removed, or else disbudded, so that only one or two remain in order to determine the variety, as might be required in the case of the newly acquired plants or seedlings flowering for the first time.

A word of warning will not be out of place regarding the after treatment of recently potted plants. It is as well to give them a shady place for the first few days, and to maintain a moist atmosphere by thoroughly damping down all under-staging and paths. The foliage may be syringed once or twice daily, as the weather conditions will allow. The large trade-growers' establishments are generally built in open country, and positions inside the houses are very similar as regards the light, consequently it little matters where the plants are replaced after they return from the potting shed. But in many amateurs' houses the conditions are not so equally balanced. One end of the house may be heavily shaded by adjacent buildings or trees, and if a plant is removed from such conditions and replaced in the sunny portion careful attention in the way of shading is required. More especially will this be needed when the constitution of the plant has been shaken by the severe handling of its root system during a thorough renewal of the compost. A method employed by some growers is to place sheets of thin paper over any plants that have been recently re-potted, removing the same soon after the sun has lost its power for the day. Each day this shading is used for a shorter period, until after about a week it can be dispensed with entirely.

Although opinions differ as to the number of bulbs that are necessary to support the new growth and to maintain the plant in the strongest vigour, everyone will agree that there is a period after which back bulbs become a hindrance to the plant. These back bulbs may be placed in separate pots, or else laid on a bed of moss until new growths are visible, when they may have compost placed around them, taking care that the pots selected are only just large enough to accommodate the current season's root action, and also to see that the compost is not placed too closely around the new growth, or it may decay through an overabundance of moisture.

Whenever plants are properly cultivated the flower spikes are strong enough to bear the weight of the flowers without any extra support, and the graceful arching manner which many of them possess is a special feature. Should, however, assistance be needed, then a thin stick firmly placed in the compost will be sufficient.

ROYAL HORTICULTURAL SOCIETY.

February 27th, 1923.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Stuart Low, E. R. Ashton, W. J. Kaye, G. F. Moore, J. Wilson Potter, R. Brooman White, T. Armstrong, A. McBean, C. H. Curtis, F. K. Sander, J. Cypher, J. E. Shill, H. G. Alexander, S. W. Flory, A. Dye, C. J. Lucas, Fred. J. Hanbury and Gurney Wilson.

First-class Certificates.

Cymbidium Alexanderi var. Rosalind, from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). A very elegant variety of this well-known hybrid between insigne and eburneo-Lowianum, and to which an Award of Merit was granted March 14th, 1922. On this occasion the plant carried two spikes bearing a total of 21 flowers, all the segments well above the average size, cream coloured with rose tints, the broadly formed labellum marked with crimson-red on the front lobe.

Cymbidium Auriga (aurantiacum × Excelsior), from Messrs. J. & A. McBean, Cooksbridge. A fine variety of excellent formation, the broad segments of cream-yellow colour, the front of the labellum having a zone of rose-coloured markings.

Awards of Merit.

Odontioda Rufus var. Wickham Beauty (Oda. beechensis × Odm. crispum), from W. H. Bird, Esq., West Wickham, Kent (gr. Mr. H. Redden). This young seedling carried a spike of three large flowers, having broad sepals and well-developed petals of round formation, both tinged with rose, the former slightly blotched with claret-red, the latter bearing a large blotch of similar colour on the central area. A very promising and pleasing result.

Odontioda Colinge var. Rosemary (Oda. Coronation × Odm. crispum), from J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne). An attractive variety, which carried an erect spike of five large flowers, all the segments flatly displayed and heavily blotched with rich crimson-red.

Cypripedium Senator (Gladiator × Lord Wolmer), from Messrs. Flory & Black. An excellent combination of the best points of both parents, the bold flower having a large, broad dorsal sepal, white, with a green base, and effectively spotted with bright rose-purple.

Groups.

A Gold Medal and Vote of Thanks for general excellence of cultivation were awarded to Messrs. J. & A. McBean for a grand exhibit of remarkably well-grown hybrids and species. Not only were all the plants fine examples of cultivation, but the artistic manner in which they were staged evoked

considerable appreciation. The central area was filled with choice Cymbidiums, making a pyramid of pleasing colour, the varieties including Alexanderi, Martin, Vesta and Castor. At the back were tall spikes of the brightly coloured Odontocidium Edwardatum, various Odontiodas, and specimen plants of Oncidium McBeanianum, the long trailing spikes of which carried many flowers of yellow and brown coloration. The Læliocattleyas included Arcturus, with flowers of cinnabar-red, Eunice, always attractive by reason of its large white flowers borne on tall spikes, and Jessamine, of bright orange-yellow colour. Touches of scarlet were seen in Odontioda Rufus and Colinge, while a pretty flower existed in Slc. Flammea. Some remarkably fine Odontoglossums were in prominent position, they included Melpomene, Fabia, and Gorizia, the latter a large flower of pretty formation and almost entirely rose-coloured. Odm. Radiant, heavily blotched, and Odm. Adula, with handsome blotching on a deep rose ground, were also much noticed, as also was the charming Odm. Rossi roseum and Odm. crispum Alabastor, a name well describing its characters. Near one end was a fine specimen of Cymbidium Alexanderi album, with large ivory-white flowers, and at other places were several very fine varieties of Lycaste Skinneri. Amongst the attractive Cattleyas were Octave Doin, Cowaniæ alba, Enid alba, and Trianæ.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal for a comprehensive exhibit of Orchids, exceedingly meritorious when the period of the year and the locality in which the plants have been grown are taken into consideration. One of the principal attractions was Odontioda Cardinal, with large flowers of bright cardinal red colour. Others were seen in the elegant Miltonia Bleuana var. Queen Elizabeth and some beautiful varieties of Odontoglossum crispum. An interesting plant was Od. Duvivierianum, a natural hybrid between maculatum and nebulosum, and also Dendrobium Wardianum album, which continues to flourish in this collection. Selenipedium cardinale and Odma. mirandum represented Orchids of former days. Lycaste Skinneri alba, L. Balliæ, and L. cruenta were all well-flowered, and in the front row were Dendrochilum glumaceum, and Odm. crispum Oakwood Ruby. Odm. Lambeauianum var. Stapelia was well named, the flowers being profusely dotted with brownish rose colour.

Messrs. Cowan & Co. were awarded a Silver Flora Medal for an attractive exhibit, containing many superb varieties of Cattleya Tityus, also C. Douai, with pure-white flowers, and Brassocattleyas Apollo, a large flower of soft rose colour. Among the Læliocattleyas were varied examples of Dodona and Osric, the latter having three flowers of orange yellow colour, the lip margined with rose. Odontiodas included Princess Bibesco, scarlet-red, Sensation, Royal Gem, Diana and Satyr. Miltonia vexillaria

was in fine form, and the Dendrobiums included well-flowered examples of Ainsworthii, nobile virginale and Buttercup.

Messrs. Sanders received a Silver Flora Medal for a pleasing group, in which several Cymbidiums of merit were staged, including Merlin, Redstart and Martin. Dendrobiums were a special feature, the best being xanthocentrum var. borealis and nobile var. Our Prince. Odontoglossum Crœsus with a fine spike of yellow and brown flowers, Odm. Brandtiæ, and Læliocattleya Dulcis looked well, while among the species of botanical interest were Masdevallia elephanticeps and Leptotes bicolor.

Messrs. Stuart Low & Co. received a Silver Flora Medal for an exhibit, in which Cattleya Freda Sander carried several pure-white flowers and Lælia anceps Rœblingiana, a tall spike of rich rose-purple coloured petals and labellum. A flower of brick-red tint was seen in Potinara Gratrixiæ. Læliocattleya luminosa aurea was in fine form, as also were Slc. Irene and Slc. Niobe. A pretty Dendrobium was staged in D. Thwaitesiæ, Veitch's variety, and Epidendrum kewense carried a number of rose-violet flowers.

Lieut.-Col. Sir George Holford exhibited Læliocattleya Ilma (Lc. Myra × Lc. Tigris), with erect spikes of flowers, the sepals and petals bright orange yellow, the labellum ruby crimson. Also Cymbidium Martin, of greenish cream colour, the lip spotted with crimson.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), staged Brassocattleya Albion (C. Trianæ alba × Bc. Thorntonii alba), with two large white flowers, the central area of the wide labellum being greenish yellow.

J. J. Bolton, Esq., Claygate, exhibited Odontoglossum Fabia var. Christopher Wren, bearing a spike of four flowers, of crimson-red colour, the labellum margined with white.

Messrs. Flory & Black staged Sophrocattleya Clarinda, of deep rose colour, Slc. Flammea, rose colour with a crimson overtint, Cypripedium Phantasy (Glorita × Actæus), white dorsal sepal, the base of same and remaining portions of flower light greenish yellow, very distinct.

Baron Bruno Schröder, Englefield Green, Surrey (gr. Mr. J. E. Shill), staged six very fine spikes of Cymbidium Pauwelsii, each bearing about 25 well-developed flowers.

Mr. H. Mariner, Kingston, staged a couple of Cypripedium hybrids.

March 13th, 1923.

Members of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), A. McBean, W. H. White, Fred. J. Hanbury, A. Dye, R. Brooman White, H. T. Pitt, J. T.

Barker, Gurney Wilson, J. Wilson Potter, H. H. Smith, H. G. Alexander, W. J. Kaye, C. J. Lucas, Stuart Low and C. H. Curtis.

FIRST-CLASS CERTIFICATES.

Cymbidium Merlin, Westonbirt var. (Dryad × Alexanderi), from Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt (gr. Mr. H. G. Alexander). This plant carried a spike of six flowers, in shape and colour resembling those of Eulophiella Peetersiana. The broad segments of rose colour, with a zone of similar colour round the margin of the lip, the central area of which is yellow; the column dark rose-purple.

Odontoglossum Llewellyn (amabile × Georgius Rex), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A remarkably fine result both in excellence of formation and in the rich coloration. A Preliminary Commendation had been previously given to this plant, but on the present occasion the two flowers secured for it the higher award. All the segments above the average size, round in shape, and nearly covered with ruby-claret blotching; the lip is prettily crisped, and has a dark maroon coloured disc beneath the crest.

AWARDS OF MERIT.

Odontonia Dora (M. Bleuana × O. Dora), from Messrs. Charlesworth & Co. An exceedingly pretty hybrid, the sepals and petals tinged with rose and blotched with a deeper shade; the expansive labellum takes more after the Miltonia parent, and is effectively marked with ruby freckling on a rose-pink ground. The spike carried seven flowers.

Cymbidium insigne rhodochilum, from Messrs. Sanders. A fine variety of outstanding merit, the tall spikes carrying numerous flowers of a pleasing rose-tint, but the labellum entirely coloured ruby-red, and spotted with dark crimson.

Cymbidium insigne var. St. Andre, from Messrs. Sanders. Another very distinct variety of this handsome species, the colour, especially on the labellum, being much more intense than in the type.

GROUPS.

Messrs. Sanders were awarded a Gold Medal for an extensive group containing a fine selection of Cymbidiums, including the new Adonis (Coningsbyanum × Pauwelsii), with a spike of twelve flowers, cream coloured with greenish shading, the lip lined and spotted with crimson. Also Cymbidium Nelly, C. Redstart, C. Landrail, and C. Pauwelsii. Among the Dendrobiums were fine examples of Wiganiæ, nobile and Cybele, as well as the scarce atroviolaceum. In the back row were many-flowered spikes of Oncidium Cavendishianum, and in the front the smaller O. pulchellum. Several specimens of Cattleya Suzanne Hye de Crom, as well as C. Empress Frederick alba and C. Tityus were in prominent places. Cochlioda rosea and Xylobium leontoglossum were

noticed, and the curious Bulbophyllum tremulum and Cirrhopetalum picturatum came in for appreciation. Slc. His Majesty carried flowers of rich purple colour, while Cœlogyne speciosa and C. Lawrenceana, as well as several Masdevallias were all shown in vigorous condition. Odontonia Freda Sander carried a graceful spike of rose-purple flowers.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Flora Medal for a very interesting group of rare species and handsome hybrids. Along the back were three specimen plants of the now scarce Odontoglossum cirrhosum and a similar number of the rare Neomoorea irrorata. Odontiodas were represented by the splendid Oda. Cardinal and Oda. Cora, the latter with reddish-purple flowers. Well-flowered plants of Lycaste Balliæ and Miltonia Bleuana were effective. A nice reminder of past days was Odontoglossum Andersonianum, with cream coloured flowers prettily spotted. Cirrhopetalum Mastersianum and Sarcochilus Fitzgeraldii were in splendid condition, as also were Phalænopsis Stuartiana and the pretty Sophronitis grandiflora.

Messrs. Stuart Low & Co. received a Silver Flora Medal for an excellent exhibit in which many scarce species were staged. They comprised Lælia Jongheana, L. flava, L. harpophylla and the pleasing Oncidium pulchellum. Dendrobiums were represented by the attractive D. Brymerianum and D. clavatum, and there were also well-flowered plants of D. Wardianum. Odontoglossum Hallii carried twenty-four flowers, while Oncidioda Stuart Low had almost as many. Læliocattleya luminosa aurea was in fine form, and rich coloration was seen in Slc. Marathon and Odontoglossum Royal Purple (Edwardii × illustre). Lycaste Skinneri alba and the neat Bulbophyllum miniatum were also much noticed.

Other Exhibits.

Lieut.-Col. Sir George Holford, K.C.V.O., exhibited Cymbidium Kittiwake, Westonbirt var., with eleven flowers, ivory-white, the lip lined and dotted with crimson-red; and Cymbidium President Wilson, with a spike of fourteen flowers bronze-green in colour, and with a V-shaped blotch on the front lobe of the lip.

The Duke of Marlborough, Blenheim (gr. Mr. J. T. Barker), staged Brassocattleya Peace (Bc. Digbyano-Mendelii × C. Dusseldorfei), a large flower, with pure-white segments; also Cypripedium Moonstar (Boltonii × niveum), of porcelain-white, with rose freckling on the sepals and petals.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), exhibited Brassocattleya Albion, of excellent formation, pure-white, except for the greenish-yellow throat.

Messrs. Charlesworth & Co. staged Odontonia Sheila (Bleuana × Lambeauianum), with a spike of five flowers, the broad lip blotched with claret-red on a rose coloured ground.

MANCHESTER ORCHID SOCIETY.

(*Continued from page* 96)

FIRST-CLASS CERTIFICATES.

Miltonia Reiné Elizabeth var. Roi des Belges; from Mrs. Bruce and Miss Wrigley. A fine large flower, the petals and dorsal sepal heavily blotched with crimson purple, lip large, white, marked in the centre with rosy brown stripes.

Odontioda Mulatto; from S. Gratrix, Esq. A fine variety, in which the flowers are of rich madder brown colour.

Vuylstekeara Sylvia, Rutherford's var. (Miltonia Bleuana × Odontioda Joan); from Col. Sir J. Rutherford, Bart. A most distinct variety, the whole flower being rich purple colour.

Cypripedium Eurybiades var. The Baroness; from Baron Bruno Schröder. The finest of the type yet seen, the immense flower having a dorsal sepal 4 inches across, beautifully spotted and with a deep white margin; petals $1\frac{3}{4}$ inches across, of rich reddish-brown.

AWARDS OF MERIT.

Cypripedium Admiral (G. F. Moore × Beryl). Cyp. Icarus West Point var. Od. crispum Olympe, Dendrobium nobile Sir F. W. Moore, D. Antrobus, and Od. Dodeham var. Prince of Orange; from S. Gratrix, Esq.

Od. Agapetum var. Brunette, Od. Adula rubens, Od. Aireworth var. Beardwood, and Bc. Vilmoriniana, Rutherford's var.; from Col. Sir J. Rutherford, Bart.

Odontioda Mary Gratrix; from Mrs. Gratrix.

Cymbidium Schlegelii var. rubrochilum; from A. T. Cussons, Esq.

Cypripedium F. M. Ogilvie var. Conyngham; from Dr. Craven Moore.

Cypripedium Pioneer var. Alpha (Zoe × Desdemona); from P. Smith, Esq.

AWARD OF APPRECIATION.

Odontoglossum Black Prince var. West Point; from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Dendrobium xanthocentrum and D. Thwaitesiæ grande; Mr. J. E. Shill, for Cypripedium Eurybiades var. The Baroness.

DENDROBIUM INAEQUALE.—Introduced from New Guinea by Messrs. Sanders, with whom it flowered in March, 1899. It is apparently most allied to D. euphlebium, Rchb. f., though there are differences in the shape of the lip. The flowers are white, veined on the front of the lip with purple, and are somewhat short-lived. They are produced singly at alternate nodes on the two adjacent exterior faces of the pseudobulbs. Figured in the *Botanical Magazine*, t. 7745.

THE ORCHID REVIEW.

VOL. XXXI.] MAY, 1923. [No. 359

NOTES.

NEW ORCHIDS.—Decade LXXIV. of Orchidaceæ novæ et criticæ (*Fede, Repert. sp. nov.* XVIII.) is devoted to descriptions of ten new Orchids from Madagascar, by Dr. R. Schlechter. They include Cynosorchis, 1; Bulbophyllum, 5; Jumellea, 1; and Angræcum, 3. Of the last-mentioned genus, A. Viguieri, is compared with the West African A. infundibulare.

THE GENUS CIRRHOPETALUM.—A recent issue of the *Botanical Magazine*, now edited by Dr. O. Stapf, contains a coloured plate of Cirrhopetalum tripudians (t. 8954). It is stated that "the genus Cirrhopetalum is apparently a well-defined group of considerable age and essentially Indo-Malayan, with outposts in Madagascar and tropical Australia. The genus was originally proposed for a Madagascar species, the Bulbophyllum longiflorum of Du Petit Thouars, which was then only known from a black and white drawing. Lindley, its author, does not state the derivation of the generic name, which, if correctly spelt, would mean 'yellow petal,' but it is more probable that the author meant to refer to the long strap-shaped lateral sepals, which are the most salient feature of the genus, and in some of the species would justify an illusion to the locks or curls of a human head, in which case the proper spelling would be Cirropetalum, from cirrus —a head."

ONCIDIUM JONESIANUM.—What a pity it is that we do not see this elegant species in cultivation. Years ago it was imported in quantity, but no one has been able to master its cultivation. It was introduced by Messrs. Horsman, of Colchester, in 1883, through M. de St. Legere, a Brazilian plant collector of French origin, who discovered it in 1878 in Northern Paraguay. It was found growing in the midst of elevated forests in the less sheltered localities, and where the thermometer in winter was said to often fall below zero. This last bit of information suggests that the plants have been probably killed by kindness through keeping them in too warm an atmosphere. The plant is without pseudobulbs, and has thick fleshy leaves cylindric in form. The flowers are 2 to 3 inches in diameter,

sepals and petals yellowish, spotted with chestnut-brown; the lip white with some red spots in front of the yellow crest; the column wings usually dotted with red. In the variety flavens the sepals and petals are pale yellowish green spotted with yellow, and the lip wholly white. The variety phænanthum has reddish-brown sepals and petals.

SOME COCCIDÆ FOUND ON ORCHIDS.—In the *Entomological News*, vol. xxxiii., p. 149, Mr. T. D. Cockerell, of Boulder, Colorado, U.S.A., refers to the following Diaspine Coccidæ, found on greenhouse Orchids; they are of interest on account of the locality, and, excepting the first, new host-plant records. Aonidia pseudaspidiotus was found by Mr. Knudson on the stems of Vanda teres in a greenhouse at Boulder, Colorado, and considered to be an oriental species. Mr. Cockerell says this species appears to be closely related to Aonidia crenulata, and in spite of its great resemblance to such species as Parlatoria pergandei thinks it is properly an Aonidia. Several years back A. pseudaspidiotus was found on an Orchid at quarantine at the port of San Francisco. Chrysomphalus dictyospermi was found on Cœlogyne cristata, infecting the leaves, and Diaspis boisduvalii on Læliocattleya Victoria and Odontoglossum Rossii.

NEOBENTHAMIA GRACILIS.

THE peculiar habit of this species attracted attention at Kew directly it was received from Zanzibar, whence it had been sent by Sir John Kirk in 1884. In February, 1890, it flowered for the first time, when it proved to be a new type. The distinct stripes and gland of the pollinia showed that it belonged to the Vandeæ, and to the sub-tribe Cymbidiæ on account of the lip being adnate to the base of the column, and without a spur.

N. gracilis is a vigorous grower, but somewhat loose and straggling in habit, for it grows naturally among bushes and avails itself of their support. The main stem is usually from 4 to 5 feet high. Secondary branches are produced at intervals, and as these develop aerial roots at the point of junction they form a ready means of propagation. The distichous leaves are drooping and about six inches in length.

The flowers are produced on dense terminal racemes, fresh flowers being formed at the apex during a period of at least six weeks. The individual flowers are about ¾ inch across, white, except that the lip has a yellow median line and a row of purplish spots on either side. Well-cultivated plants will yield spikes with upwards of 30 flowers. N. gracilis is an endemic monotype, allied to the Asiatic genus Bromheadia, and should be cultivated in a warm house, selecting a fairly light position in order that the slender stems be satisfactorily ripened.

CIRRHOPETALUM MEDUSÆ ALBUM.

ALMOST interesting colour, and possibly a geographical form of the quaint and interesting Cirrhopetalum Medusæ was recently in flower at Mundham Vicarage, the residence of the Rev. J. C. B. Fletcher.

C. Medusæ is fairly well represented in cultivation, but never fails to attract notice by the size of its inflorescence and the remarkable attenuation of the lower sepals. Numerous flowers are set closely together in dense heads on short erect spikes. Individually, the flowers are a pale straw or cream-yellow colour, dotted with pink, the two lower sepals being lengthened into thread-like points, four to five inches long, which fall in different directions, giving a fancied, but not inapt, resemblance to Medusa's head. The upper sepal resembles the lower in shape but is much shorter and slightly broader. At the back of each flower is a sepal-like bract. The type is obtained from Singapore, but the present variety is supposed to be a native of Sumatra. Colour is the most easily distinguishable difference, as the long sepals and the very small petals are a soft pure white, heightened by the deep yellow colour of the minute lip. The bract is grey-white. Unfortunately typical flowers were not available for comparison, but in this variety the sepals appear to be much straighter. Pseudobulbs and leaves are however similar.

The collection at Mundham is particularly rich in Bulbophyllums, and many fine specimens are included. Both B. Fletcheri and B. macrobulbum (B. Balfourianum) are represented by very large plants. A plant of the latter is particularly noticeable as the latest leaf is two feet long, and broad in proportion. The two species are evidently closely allied, both in flower and habit, but macrobulbum appears to be the more robust. A very large specimen of Bulbophyllum saltatorium carried numerous spikes of its daintily haired flowers, not unlike B. barbigerum individually, but smaller, carried on erect spikes and with a pinkish-white hue prevailing the flowers. Cirrhopetalum Mastersianum was represented by two very fine specimens. The broad orange-yellow sepals are curved downward, and as the flowers are set closely together the whole inflorescence forms a canopy of charm.

Not in flower at the moment, but drawing attention by their size and vigour are huge specimens of Arachnanthe Lowii, the size of which may be imagined from the fact that it has carried twenty-three of its pendent flexuouse spikes in one season, and Arachnanthe Rohaniana, nearly as tall as Lowii but falling short in its number of growths. It has been suggested that A. Rohaniana is but a variety of Lowii; evidently they are very closely allied, but A. Rohaniana, even when not in flower, may be detected by its shorter leaves.

Vanda Dearei completes a trio of specimen plants, and it is very

doubtful if three such plants have been or are in cultivation elsewhere. The Vanda Deari was acquired some years ago from Messrs. Sanders, who received it from their collector Micholitz, and in all good faith was said not to be a robust growing species. The plant at Mundham, however, now extends from the floor to the top of the house—a large structure—and evidently has not yet finished growing. It would be a puzzle to know how to accommodate such a plant, but fortunately Vandas on the whole are accommodating and the stem can probably be curved. The flowers are large, fleshy, and cream-yellow, on few flowered axillary inflorescences. The habit is not unlike that of Arachnanthe Lowii, but the foliage is bright green, shorter and stiffer. It was originally described by Reichenbach, f., in 1886 (*Gard. Chron.*, xxvi. 648) and received a First-class Certificate when exhibited by the late Baron Schröder at the Royal Horticultural Society in September of the same year. Reichenbach likened it to Vanda tricolor, but the flowers are much larger, though fewer, than those of that species, and beyond the usual Vandaceous characters have no resemblance in the habit, the foliage being much broader and of greater texture.

A second house contained a gem in Cœlogyne pulchella, alone worth a visit. ' Cœlogyne as a genus includes many beautiful yet apparently widely separated species, but though many are larger, few rival the one above-mentioned in beauty and distinction. The ovate pseudobulbs are about two inches high, and carry one, or usually two, dark green leaves three to five inches long. The spikes are erect, four to six inches high, six to ten flowered, perhaps more. Each flower is about one inch across, with narrow, straight, backward inclined, horn-like petals, which with the broad rounded sepals are pure glistening white. Contrasting with this purity is the lip, which though outlined with white, has a large central disc of dark brown with a black-brown crest. Roughly the flowers resemble those of Cœlogyne Micholitzii in miniature, but have the advantage of extreme beauty. Regarding this last mentioned species, weird and curious are more applicable terms.

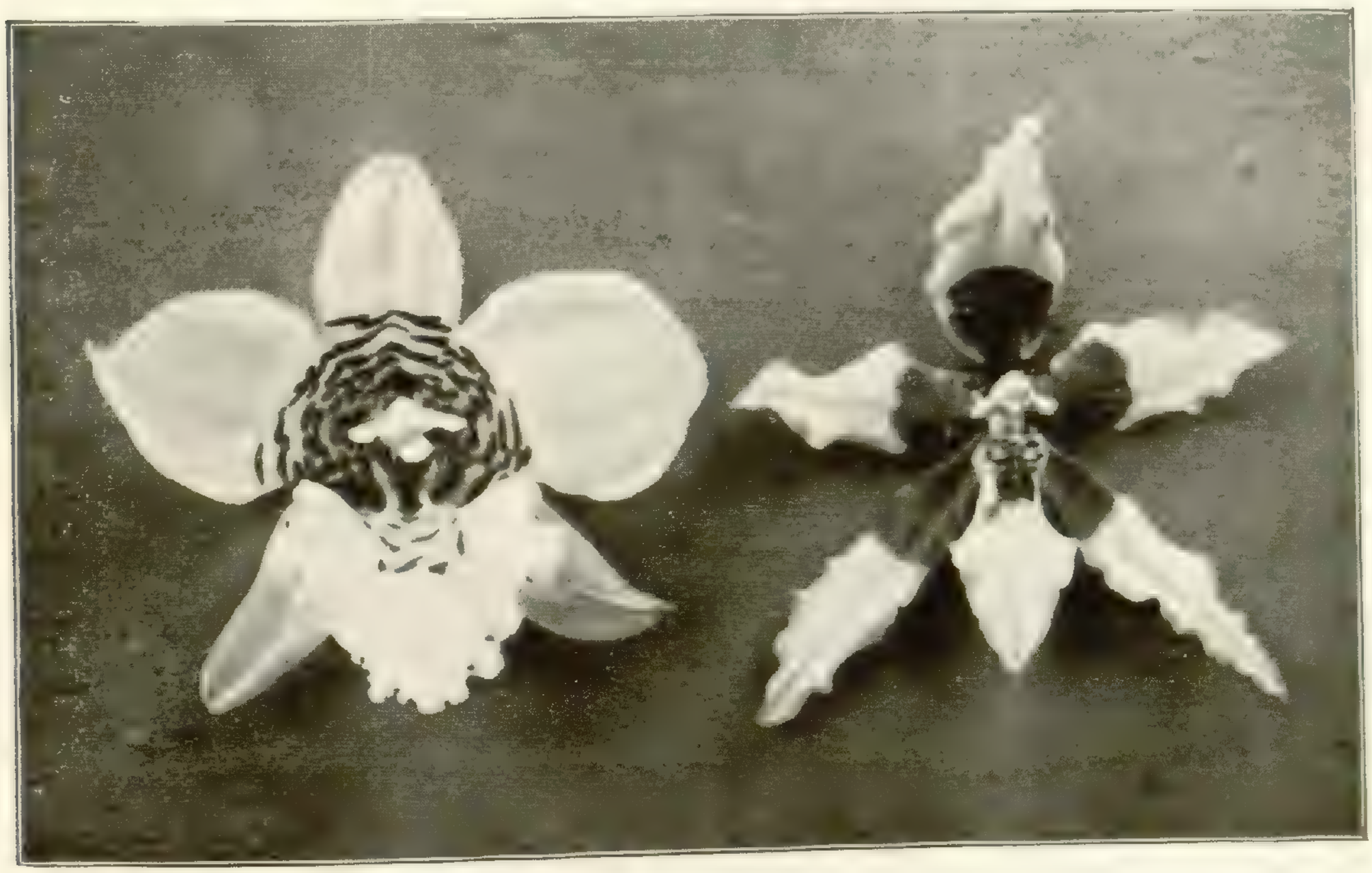
Other plants noted in flower were Ipsea speciosa, Bletia Shepherdii, Epidendrum elongatum album and a very fine form of Dendrobium fimbriatum oculatum of an exceptionally deep orange hue in the sepals and petals.

E. C.

CYMBIDIUM PAUWELSII.—Cymbidiums are certainly among the most popular Orchids of to-day, and if we enquire the reason it is to found in their attractive qualities and easy cultivation. A specimen plant of C. Pauwelsii has been brought to a fine state of perfection by Messrs. J. & A. McBean. It consists of seven bulbs, carries two spikes, each just over six feet in length, and with a total of 47 large flowers.

ODONTOGLOSSUM CERVANTESII.

THIS attractive species is one of the oldest members of the Odontoglossum genus, having been described by the Spanish botanists La Lave and Lexara in 1825 (*Orch. Opusc.*, 37), and by them dedicated to Vincentio Cervantes, a Mexican professor of Botany. Its native habitat is Guatemala and Mexico, whence plants were obtained by Messrs. Loddiges, of Hackney, about the year 1844. The flowers are 1½-2 inches in diameter, white, with chocolate-red tangential streaks around the base of the segments. The variety decorum has larger flowers with broader segments, especially the lip, and the streaks of colour are more inclined to be purple; it is figured in the *Orchid Album*, vi., t. 251. O. Cervantesii is



ODONTOGLOSSUM CERVANTESII. O. LAIRESSEI.

a close relation of O. Rossii, and requires similar treatment, that is to say, cool treatment with carefully arranged shading during the periods of bright sunshine. As the bulbs are comparatively small and the leaves somewhat short, the plants should not be hidden away amongst the taller and more robust plants of the genus. Shallow pots or pans are suitable, and if these are placed on top of a larger inverted pot the plants will be brought somewhat on a level with other occupants of the house. Some cultivators prefer suspending the pans from the roof, which is a good plan during the greater part of the year, but in the height of summer there is some risk of the surrounding atmosphere becoming too hot and dry. This latter difficulty can be overcome by removing the plants to the staging, or taking care that ample shading is provided.

Odontoglossum Lairessei is a garden-raised hybrid between Cervantesii and Edwardii. It was raised by M. A. de Lairesse, of Liège, and flowered for the first time in 1905. Our illustration proves the strong influence of O. Cervantesii in attracting the purple colour of O. Edwardii to the same region as the concentric lines of colour that are so characteristic of the former species. The only other hybrid that seems to have been raised from O. Cervantesii is O. Circe (Cervantesii × Pescatorei), and this flowered with Messrs. Charlesworth & Co. in the autumn of 1910. The flowers were white, with purplish spotting on the base of each segment.

AN IMPORTATION OF DENDROBIUMS.

SO many years have elapsed since Dendrobiums were imported in large quantities that the arrival of another lot is a matter of interest. The plants have recently been received by Messrs. Stuart Low & Co., and although they comprise less than a dozen species, all are picked specimens selected in India, for in these days it would probably not be a profitable undertaking to pack and pay carriage on small pieces. The following are amongst the noteworthy species received:—

D. Devonianum was discovered through the interest in Orchids taken by the Duke of Devonshire, who despatched a collector to the East Indies in 1835. Two years later plants were brought to the Chatsworth Gardens, among them being D. Devonianum, the subject of a coloured plate in Paxton's *Magazine of Botany*, 1840 (vol. vii., p. 169). The pendulous stems of this species are about a yard long, and it is of interest to note that Paxton considered "the proper way of cultivating it is to plant the specimen in a wooden or wire basket, filled with potsherds and sphagnum moss, and suspended from chains, rods, or pillars, a short distance beneath the roof of the tropical Orchidaceous-house. The stems should not be supported in an erect position, but allowed to fall over the edges of the basket. Pieces of the stem, placed in moss, and watered at first with care, will develop roots, and readily make an independent growth."

Robt. Warner considered D. Devonianum worthy of inclusion in his fine folio work, *Select Orchidaceous Plants* (II. t. 11). This work was published during the period 1865-75, and the note by B. S. Williams indicates that its culture was then fairly well understood, for he wrote:—"This plant will thrive either on a block, or in a basket suspended from the roof. The best material in which to grow it is good sphagnum moss and rough fibrous peat, mixed with broken charcoal or crocks. It is subject to red spider, which, if allowed to accumulate, will cause the foliage to turn yellow and fall off. We have never seen this Dendrobe grown better than when plenty of heat and moisture is given during the growing season, and

this is the only way in which it can be grown to perfection." The flowers are two inches across, white stained with amethyst-purple at the tips of the segments, the lip prettily fringed and with two orange-yellow blotches on the disc.

D. Falconeri was named in compliment to Dr. Falconer, for some years Director of the Calcutta Botanic Gardens. It first appeared in English gardens in 1856, when a plant said to have been imported along with others from the mountains of Bhotan flowered in the collection of Mr. Geo. Reid, at Burnham, Somerset. The stems are slender, of various lengths, and will not stand severe shrivelling. A coloured plate is given in Williams' *Orchid Album* (vol. vi., t. 257). where it is remarked that "some of the finest specimens we have seen were grown for several years by Mr. Swan, when gardener to W. Leach, Esq., Fallowfield, Manchester. They were cultivated in pots or baskets, and a grand sight they presented with their brightly coloured flowers." Messrs. Veitch, in their *Orchid Manual*, state that D. Falconeri succeeds best attached to a block of wood or tree-fern suspended near the roof glass of the East India house. When the season's growth is completed it may be removed to a cooler house, and kept there during the winter months, during which time it should be dipped or syringed once a week, or so often as is sufficient to prevent an excessive shrivelling of the plant. The flowers are two or three inches across, white, tinged with pale rose, and with a rich amethyst-purple colour at the tips of the segments ; the disc of the lip is rich maroon-purple with a bright orange blotch on each side.

D. chrysotoxum is widely distributed over the plains and mountains of Lower Burmah. The specific name, literally The Golden Arch, is rather fanciful, and probably refers to the arching racemes of yellow flowers. The bulbs are usually club-shaped, but sometimes spindle-shaped. The drooping racemes are produced from near the top of the stems and carry rich golden-yellow flowers, with the disc on the lip orange-yellow.

D. chrysanthum has slender stems which often extend to a length of six or seven feet. It is a native of the hot valleys of the lower Himalayan zone, whence it was introduced into the Botanic Garden at Calcutta by Dr. Wallich, who brought it to England in 1828. A remarkable specimen of this handsome species was at one time in the celebrated collection of the late Sir Trevor Lawrence. It was grown in a teak basket, suspended close to the glass near the ridge of the East India house. In September, 1884, the flowering stems, upwards of fifty in number, were covered with golden flowers, and presented one of the most gorgeous of Orchid displays. The flowers are borne in racemes of about six, produced from the current year's growth, while the leaves are still green, and are of wax-like texture, bright orange-yellow with two maroon spots on the lip.

D. primulinum owes its specific name to the cowslip fragrance of the flowers, which expand during the months of February and March. The stems are erect, but assume a pendulous habit when fully grown. Flowers two to three inches across, sepals and petals pale mauve-lilac, the lip pale primrose-yellow with some purple streaks at the base. There appears to be much variety in the flowers, one, known as giganteum, having a considerably enlarged labellum.

D. aureum, also known as D. heterocarpum, is a widely distributed species. It has been found in eastern Assam, Burmah, and the Philippine Islands, and was first sent to England from the Khasia Hills, by Gibson, in 1837. The stems are erect, from nine to eighteen inches high, while the flowers are two inches or more across, produced in twos and threes from the upper nodes, cream-coloured, the lip buff-yellow streaked with reddish-purple. Several varieties have been described.

D. thyrsiflorum was introduced by Messrs. Low & Co., in 1865, through the Rev. C. Parish, its discoverer. It was found in the forests of Moulmein and of the Kargen district of Lower Burmah. The stout stems, 18 to 24 inches in height, bear at their apex several thick leaves. The pendulous racemes carry numerous flowers, each about 1½ to 2 inches across; white, the downy lip orange-yellow. When well flowered this fine species makes a grand effect, for the masses of flowers are seldom equalled by any other member of the genus.

ANTS IN ORCHID HOUSES.—Ants appear to have a particular liking for the pollen of certain flowers, and frequently carry away some that is of value to the Orchid hybridist. Messrs. J. & A. McBean find a successful method of capturing them consists of placing pieces of boiled bones at intervals on the staging. Periodical examination generally leads to the discovery of large numbers of ants endeavouring to obtain food therefrom, when their capture is easily effected.

MILTONIA VEXILLARIA VAR. G. D. OWEN.—This well-known variety, distinguished by the dark crimson blotch on the basal area of the labellum, has always received attention by hybridists, and several excellent results have been produced. Recently, Messrs. J. & A. McBean have flowered about a dozen seedlings which they raised from seed obtained by fertilising the above plant with its own pollen. One would expect that a certain amount of reversion to the normal type of unblotched flower would result, but such has not so far been the case, for all the dozen plants have yielded flowers with the very same dark crimson blotch on the labellum. Another point of interest is that the flowers of these seedlings are larger than those of the parent.

SOME RECOLLECTIONS AND NOTES ON ORCHID GROWING.

By THOMAS INGLIS, M.D., Edinburgh.

MY earliest recollections of Orchids go back to my school days, when in the early nineties my father purchased a few Orchids at a sale in Glasgow as a recompense for my getting a tooth extracted. Well do I remember those plants. They consisted of Cypripedium insigne, Dendrobiums crassinode, and densiflorum, Odontoglossum Rossii majus, Maxillaria picta and Pholidota imbricata. These were followed at a later date with Cattleya Mendeli, Dendrobium nobile, Odontoglossum crispum, Lælia anceps, Oncidium ornithorhynchum, Lee's var.—a fine lot for the novice to tackle. Needless to say, my attentions were followed by fatal results, excepting in the case of Cypripedium insigne and Odontoglossum Rossii, which were still in the greenhouse after I graduated in 1900. I remember being interested in the "Orchid Notes" published in *Gardening Illustrated* (1891-93), which were written at that time by "Matt. Bramble." During 1903, when on a trip to India, I brought home with me some plants of the Vanda type, and in spite of a good start in the way of aerial roots, the first spell of severe weather knocked them out. It was not until 1915 that I could make a start again, and by October a small Orchid house, built on modern lines, was ready for my first consignment of plants. The house was 15½ft. by 10½ft., and 9ft. to the ridge, with top and bottom ventilators. There was the usual double staging, the lower being covered with broken brick, while the central pathway was made of wood. There was also sufficient accommodation for rain water, and two-sparred wood shelves, which could be taken down or placed in position as occasion demanded. The house was heated by a Pyro boiler, built in on one side of house near the door, the hot water piping—4in. diameter—consisting of two rows on two sides and two rows at the top end.

My garden at Portobello was to the small side, and I was hemmed in as regards air space, but I got plenty of sun in the spring and summer, especially later in the day. The situation could hardly be described as an ideal one for the cultivation of Orchids, but on looking back I feel that I attained a fair measure of success. The war was on, and, with my assistant being called away, the plants at the start did not always get the attention which they required. In severe weather I had difficulty in keeping the temperature over 50° F. without making the pipes unduly hot, and for a mixed class of plants I realise now that an extra row of pipes all round would have been better. A critical time for my plants was during my summer holidays. I had an annual crop of casualties on account of the handy man in charge either giving too much water or too little water, but usually the former; any newly potted plants suffering severely. From my

record book I find that during the five years I purchased 327 Orchids, and acquired as presents other 32 plants. Propagating certain plants was fairly easy, and from this source I got together about 60 good varieties. Altogether 32 genera of the Orchid family were represented, including 4 bigeneric and 1 trigeneric. Species, and varieties of species, as well as hybrids, and varieties of hybrids were equally divided. As regards casualties 130 plants perished, but 40 per cent. of these took place after I had left Portobello. I had taken a furnished house in Edinburgh, where there was a cold greenhouse, so I could not resist taking some Orchids with me. These consisted of 20 of my best Cypripediums, and about 60 of my best Odontoglossums and Odontiodas. I got a paraffin stove to keep out the cold, but an accident happened one day, and, instead of snowing outside, it snowed soot inside, with the result that with a few exceptions the Odontoglossums and Odontiodas faded out. Cypripediums must have a hardy constitution, for these plants came through their rather severe experience, and are amongst the good Cyps. in the Edinburgh Botanic Gardens. My Orchids were presented to the Gardens in three portions, and were much appreciated by the authorities there.

My most important genus was Odontoglossum, followed by Cypripedium, Odontioda, Oncidium, Cymbidium, Dendrobium, Cœlogyne, in the order named, the rest of the plants covering 25 genera. I found at an early stage that I could not succeed with the Cattleya family and its numerous hybrids, this section only including 18 plants, but not remaining long at that number. However, I had two successes in this group, namely, Cattleya citrina, which bloomed regularly each year in a position near the door, and a Sophronitis hybrid which emanated from the Brackenhurst collection in 1916. This hybrid was Slc. Marcelia (Læliocattleya Mercia × Sophrocattleya Saxa), and was a very decorative plant; it was recorded by Messrs. Stuart Low & Co., but owing to an accident, when the lead of the plant with two buds got broken off, I was prevented from recording this cross twelve months earlier. I was able to establish the leading growth, and now this hybrid is represented by two healthy plants in the Botanic Gardens, where they have bloomed well during the last two seasons.

Two Brassocattleyas which I purchased from Messrs. Mansell & Hatcher in 1917, unflowered, grew well with me without blooming, but they were easily divided, and four smart plants are now doing well in their new home. Lælias were only a partial success; my two best being Gouldiana and Jongheana. The various anceps varieties were amongst my earliest arrivals, and I suppose my inexperience had a lot to do with their failure. Again, when one had to shade the other inmates of the house, one could not always give the Lælias enough sunshine. The best form of anceps for the amateur to grow is the variety Chamberlainiana. Epiden-

drums of the radicans section grew like weeds and were easily managed. Amongst them I had Bourtoni, Gattonense, and xanthinum. A rarer one was arachnoglossum. I had a few plants of vitellinum majus, which I bought at an auction sale, but I could make no headway with these plants. To start with they were weak plants, and getting wrong treatment they did not survive long.

Lycaste Skinneri was one of my showy Orchids, one of them deserving of a varietal name. Lycaste Deppei did not grow so well in my collection. Pleiones were always favourites of mine, and bloomed regularly with me. Amongst those I possessed were lagenaria, præcox, and its variety Wallichiana. Two other good ones that the amateur might add to his collection are Delavayi and yunnanensis. Zygopetalum Mackayi and Maxillaria Sanderiana grew strongly in my greenhouse, and never failed to give a good account of themselves at flowering time. Easily managed and as easily propagated, these two fine species are well worth a place in the amateur's collection. I made an attempt to grow Disas, and acquired a few plants from Messrs. Flory & Black in 1916, but like others before me I failed to grow them. I tried the species grandiflora, and the hybrids Luna and Blackii, and of the three, Luna gave the best account of itself, giving me a good spike one season. All the same I think that I will grow them better at the next attempt.

Regarding the Vandas, the only one which I was able to bloom was, strange to say, coerulea, but never again did it show its lovely flowers. Vanda suavis was robust enough, but refused to bloom. This is an interesting section. Odontoglossums with Odontiodas were my chief plants, and I had, leaving out July and August, always some variety in flower, and taking them all over I would say that they did well. I had my setbacks always at potting time, and, as I was often away during May and September, some of these plants never got a chance. Never again will I use polypodium fibre, an excess of oak leaves and live sphagnum in a moist condition, in my potting mixture. One watering, and the plants took a long time to get dry again, and by that time any roots they possessed had gone, and it was some time before one could get the plants established. In future I am potting Odontoglossums and Odontiodas in two parts osmunda fibre, one part sphagnum moss, and a sprinkling of oak leaves, keeping off direct watering for from 4 to 6 weeks. One can always keep the surface of the compost moist when necessary with one of the modern sprayers. An interesting speculation is to buy plants of this section as unflowered seedlings. I purchased a dozen of these from a well-known southern grower, and on the arrival of the plants I discovered that each plant had part of the old flower stalk remaining. Truly, there is roguery in all trades. One often wonders what becomes of the tens of thousands of Orchid

seedlings raised annually, for a great many of these that are grown on must be sad examples when they flower. Possibly the unsuspecting amateur who is innocent of such matters gets a few at the growers' price to experiment with.

The best of my Odontoglossums were a few crispums, a nice Pescatorei, eximium, Gloriana, Ossulstonii × Aireworth, harvengtense, and Rossii majus. One very interesting plant was Odm. Hibernicum (Hallii × hastilabium). Purchased as a seedling in 1915 from Messrs. Cypher, it grew into a fine specimen and put up a big spike at flowering time. It is a far more decorative plant than some of the present day hybrids. The Odontiodas all over were a good show, and included fairly good forms of Diana, Charlesworthii, Cooksoniæ, Vuylstekeæ, etc. Requiring the same treatment as Odontoglossums, these are well worth including in the small amateur's collection.

Of all my Orchids I found Cypripediums the easiest to grow, and I believe that I would have attained better results with a warmer temperature. The critical time with these plants, as with all other Orchids, is at repotting time, more especially if one is dividing a plant or breaking up a larger specimen for stock purposes. The secret here is not so much compost, but plenty of heat and moisture, keeping off direct watering for some weeks until the plants are established. Naturally these Orchids will take longer to get established in a lower temperature, and require even more carefu· watering. There are so many good things in this genus that the amateur has no room for weedy forms; but at the same time he should not neglect the showier species and their varieties, and with a select list of hybrids he can have a splendid display from October to March. The one I put first is insigne Sanderæ, followed by insigne Harefield Hall and Maudiæ magnificum. If there is room these should be grown in quantity, and they are well worth the extra space. Amongst others I had, for which I still have a special fancy are Minos Youngii, Helen II. Westonbirt var. and Queen Alexandra, Lee's var. To these I would add good forms of Carola, Actæus, Pyramus, and the Westonbirt vars. of Cyclops, Lord Wolmer, and Swallowtail. To my mind these might form the nucleus of a good selection, but I do not suppose that one could get two experts to agree as to the best 50 Cypripediums.

Cymbidiums were another excellent lot, but owing to lack of space I could only accommodate a few. Receiving ordinary "greenhouse plant" treatment they always bloomed well with me. Amongst the species were Lowianum and Tracyanum, while the hybrids were represented by Alexanderi, Doris, Gottianum, Hanburyanum, etc. These are all fine decorative subjects and there are plenty of other hybrids to make a selection from. A good form of Miranda should be worth growing. Oncidiums are

favourites of mine, and one of the best was Marshallianum, which I bought newly imported some years ago. This is an exquisite Orchid, and with tigrinum, Forbesi and varicosum, well worth growing. These plants were all successful with me, one particular plant that did well being Oncidium flexuosum majus, a better form than the type.

The Cœlogynes including Massangeana, barbata and speciosa, were all happy in my greenhouse, and I often remarked that it would have been impossible to have killed the first-named plant, so vigorous was it. In spite of its colour it is an interesting plant. Cœlogyne cristata was only a partial success, no doubt due to my interference. Most of the Dendrobiums died out from want of heat and moisture during the growing season, but a few did fairly well, including Wardianum, nobile, and the hybrid Rolfeæ. D. thyrsiflorum did well for a time. The nobile plants, however, in spite of making good growths, failed to bloom, probably from lack of sunshine, and failure in ripening their bulbs. One experienced considerable difficulty in giving the different Orchids grown together in one house the correct treatment at all seasons.

Regarding other plants in the collection I might mention Ada aurantiaca, a vigorous grower, Cochlioda Nœtzliana, which grew strongly but refused to bloom, Miltonia candida flavescens, another strong grower, but flowering never. Then there was the dainty Sophronitis grandiflora, which looked better in bloom when my few plants were colonised, and the superb Stanhopea tigrina, which bloomed once with me, but failed to make good in a cool intermediate temperature. There were others, but I need not catalogue them.

HYBRIDISATION.—I started making some crosses in 1918-19 with Cymbidiums, Cypripediums and Odontiodas, and in 1920 made a few sowings after giving away some of my seed pods. One plant of Cymbidium insigne, which was never too robust, never recovered properly after it had ripened its fruit. I have not yet heard of any successful results from the seed given away, but not long after Mr. Mundy, the Orchid foreman, removed the second portion of my plants to the Royal Botanic Gardens in November, 1920, he discovered some Cypripedium seedlings on a pot in which Cyp. Thalia was growing. These seedlings turned out to be Baron Schröder × villosum aureum, and when I saw them this month they had been potted in 2in. pots and were looking healthy and vigorous. They were certainly a long time in germinating, and probably other seedlings may have been lost in the removal. I am told that Cypripedium Baron Schröder is a shy flowering plant. The one in the Gardens has that reputation, and my plant was not too keen on flowering. I fully intend taking up this interesting branch of Orchidology once I make another start, when probably I shall have better facilities for seed raising.

CONCLUSION.—I am afraid that these notes are scrappy and disjointed, but they may prove interesting to amateurs who have recently taken up the cultivation of Orchids. I would recommend all beginners to buy their plants—especially hybrids—in flower if possible, then they see what they are getting for their money, and as regards species and their varieties preference should always be given to newly imported or semi-established plants. Should an amateur decide on purchasing unflowered seedlings, he should make certain that he is getting what he ordered. He should never buy at an auction sale, public or private, unless present to see the plants for himself, and if he is not sure of his ground he should stand off. Labels have a habit of getting mixed here as elsewhere, and there is no reason why he should be landed. He should bear in mind that a trade grower's own selection is not the one that he himself would probably make, and if he is not confident enough to select his own plants, he should call in the services of an amateur friend with some experience to act for him. He should never forget that even the smallest collection is incomplete unless it contains a few of the showier species and their varieties.

The amateur should certainly pay a reasonable price for his Orchids, but he should not allow himself to pay a fancy price for any individual plant. He should take a lesson or two in potting an Orchid in the various sections, and he will find it more economical to buy the various fibres, loam, sphagnum moss, etc., rather than to purchase prepared composts.

Last, but not least, he should never fail to read the *Orchid Review*.

LÆLIOCATTLEYA DOLOMITE.—Messrs. Stuart Low & Co. are the raisers of this handsome novelty. It was produced through the crossing of Lc. Domos (C. Mossiæ × Lc. Dominiana) with Lc. Aphrodite (C. Mendelii × L. purpurata). The sepals and petals are of a pleasing rose-pink colour, while the roundly formed labellum is ruby-purple, with dark crimson veining and suffusion; the throat yellow, streaked with crimson beneath the column. Very fine varieties of both parents were used, and as the seedlings possess a vigorous constitution some excellent results may be expected.

ONCIDIUM PULCHELLUM.—One of the most charming of the small-growing Oncidiums, the plant inhabits the virgin forest of Jamaica at an elevation of from 3000-4000 feet, and where the temperature rarely exceeds 75 degrees. Although rain does not fall every day, the atmosphere is usually cloudy and damp. In present day collections it is cultivated in shallow pots or pans with a light fibrous compost, but in Jamaica it succeeds well on cocoa-nut husks that have been split through the middle. The plant is without pseudobulbs, and the spikes carry many flowers, about an inch across vertically, white, flushed with rose.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya H. Hunter	Bc. Digbyano-Mossiæ × C. S. H. de Crom	Stuart Low.
Brassolæliocattleya Boadicea ...	C. Mendelii × Blc. Queen of the Belgians	Flory & Black.
Brassolæliocattleya Sunset	Bc. Thorntonii × Lc. luminosa	Sanders.
Cattleya Delphin	Tityus × Empress Frederick	McBean.
Cattleya Titrianæ	Trianæ × Tityus	McBean.
Cymbidium Auriga	Alexanderi × Excelsior	McBean.
Cymbidium Bittern	Gottianum × Lowio-grandiflorum ...	Sir Geo. Holford.
Cymbidium Bunting	insigne × Garnet	Sir Geo. Holford.
Cymbidium Bustard	Garnet × Lowio-grandiflorum	Sir Geo. Holford.
Cymbidium Cetus	Alexanderi × Parishii	McBean.
Cymbidium Kingfisher	Gottianum × Butterfly	Sir Geo. Holford.
Cymbidium Lady R. Paget	insigne × Butterfly	Sir Arthur Paget.
Cymbidium Lapwing	Butterfly × Miranda	Sir Geo. Holford.
Cypripedium Admiral	G. F. Moore × Beryl	S. Gratrix.
Cypripedium Cardemona	Carola × Desdemona	P. Smith.
Cypripedium Edwin S. Webster ...	Aisne × Gaston Bultel	Stuart Low.
Cypripedium Hypericum	Glorita × majesticum	Flory & Black.
Cypripedium Moonstar	Boltonii × niveum	Duke of Marlborough.
Cypripedium Rowland	Vandyke hybrid × Peter	H. T. Pitt.
Cypripedium Seagull	Gulliver × Earl of Tankerville	Sir Geo. Holford.
Cypripedium Shamus...	Earl of Tankerville × keighleyense ...	Mrs. Bruce & MissWrigley
Cypripedium Villorma	villosum × Maudiæ	Mrs. Bruce & MissWrigley
Cypripedium Windsor	Eurybiades × Chardwar	S. Gratrix.
Lælia Coral	De Geestiana × pumila	McBean.
Læliocattleya Beauty...	C. Whitei × Lc. Britannia	Sanders.
Læliocattleya Dolomite	Lc. Domos × Lc. Aphrodite	Stuart Low.
Læliocattleya Luman	Lc. luminosa × L. anceps	McBean.
Læliocattleya Nancie Gamble ...	Lc. Hyeana × C. Trianæ	F. J. Hanbury.
Læliocattleya Nora	C. Nortia × Lc. Dominiana	Cowan.
Læliocattleya Raven	Dominiana × Black Prince	Sanders.
Læliocattleya Rubella	Nella × St. Gothard	Stuart Low.
Læliocattleya Saffron	Lc. Smilax × Lc. Cupid	Pantia Ralli.
Odontioda Angelo	Odm. Fascinator × Oda. Queen Mary ...	C. J. Lucas.
Odontioda Beta	Odm. Midnight × Oda. Joan	McBean.
Odontioda Cordor	Oda. Coronation × Odm. Doris	S. Gratrix.
Odontioda D. M. Mackenzie	Odm. crispum × Oda. Leeana	F. J. Hanbury.
Odontioda Delta	Oda. Brunette × Odm. Lawrenceanum ...	McBean.
Odontioda Marietta	Oda. Madeline × Odm. Dusky Monarch ...	R. Gerrish.
Odontioda Walda	Oda. Coronation × Odm. Louise	R. Gerrish.
Odontoglossum Crisarrillus	crispo-Harryanum × illustrissimum ...	Geo. A. Wood.
Odontoglossum Orosum	crispum × Orosius	R. Gerrish.
Potinara Lowii	Lowiara insignis × Lc. luminosa	Stuart Low.
Sophrolæliocattleya Flammea ...	Slc. Eros × C. Lawrenceana	Flory & Black.
Vuylstekeara Rutherford's Sylvia ...	M. Bleuana × Oda. Joan	Sir J. Rutherford.

ERRATUM.—Cypripedium Toot (p. 120) should be C. Loot.

ODONTOGLOSSUM CRISARRILLUS.—From the collection of Geo. A. Wood, Esq., of Harrogate, we have received a very pleasing flower of a new hybrid obtained by crossing crispo-Harryanum with illustrissimum. The specific name is well chosen, for Crisarrillus assists in identifying the parentage, and, as a single word, readily allows of varietal names being attached.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

TEMPERATURES.—From now onwards the conditions in each division must be generous and conducive to the production of strong, healthy growths. The temperatures for the next few months should be slightly raised. The following minimum readings are safe and reliable: East Indian house, 65° to 70°; Cattleya house, 60° to 65°; Mexican or Intermediate house, about 60°. At the present time and during the summer months the inmates of the Odontoglossum house should be kept as cool as possible. Endeavour to maintain a day temperature of 60° to 65°, and 55° or a little lower at night. Artificial heat should not be employed during the day, but on damp, chilly nights the hot water pipes should be slightly warmed. This small amount of fire-heat may be counter-balanced by opening the bottom ventilator a little wider, the fresh air will be beneficial to the plants, and will prevent the flowers from becoming spotted by condensed moisture settling on them. The house should be damped thoroughly three or four times during bright days, and the plants judiciously shaded and watered. Those not in flower should be sprayed overhead twice on sunny days, affording the last wetting sufficiently early in the afternoon for the leaves to become dry before night arrives. Admit air freely through the bottom ventilators on all favourable occasions. When the weather is warm and bright a rise of several degrees by sun-heat will be beneficial to the inmates of the warmer divisions, providing there is sufficient ventilation afforded to balance it. After a long season of rest plants of Odontoglossum grande and O. Insleayi are starting into growth afresh, and just previous to their commencing new roots from their base should be repotted, if necessary, in receptacles of sufficient size to accommodate them for two seasons. Others that have sufficient pot-room for another year, and the compost has not become decayed, should be immersed in water so as to thoroughly soak the soil, afterwards allowing them to become dry, when portions of the old materials should be picked out from between the roots on the surface, and replaced with new. Odontoglossum Uro-Skinneri is also pushing new roots from the base of the young shoots, and any needing new rooting materials should be given attention at this period. O. Rossii, O. Cervantesii, and O. Oerstedii, that have recently passed out of flower, should be suspended close to the roof glass, and afforded only sufficient water to prevent the pseudobulbs from shrivelling, as an excess of water whilst these plants are at rest will cause the roots to decay.

SOPHRONITIS GRANDIFLORA.—This brilliant cool-house Orchid has been blooming for some time. The flowers are produced from the partly-developed pseudobulbs. Some are still in flower and others have passed that stage. It

is a mistake to leave the blooms on the plants too long, especially on weak specimens, as the small pseudobulbs are not of sufficient strength to withstand the strain. If repotting is necessary, it is best done as the plants pass out of flower. Sophronites are best grown in shallow pans and suspended from the roof rafters, they should be afforded ample drainage and rather a thin layer of rooting material should be employed, this may be composed of Osmunda fibre and clean sphagnum-moss cut up into rather small portions. When the plants are rooted into the new compost they should be kept sufficiently moist at all times to maintain the sphagnum-moss green and healthy, and carefully shaded from bright sunshine, but be given all the light possible during the winter months. When growing care should be taken that water does not lodge in the centre of the young growths, as this may cause them to decay.

PHAIUS.—Both species and hybrids of this genus, such as P. Sanderianus, P. Bernaysii, P. grandifolius, P. tuberculosus, and the hybrids P. Norman, P. Cooksonii and P. Phœbe are all worthy of cultivation. These plants bloom at different periods of the year, so that all will not need repotting at the same time. It is best done soon after the flower-spikes have been removed and new roots begin to develope from the base of the young growths. The pots should be well drained, as it is essential that water should pass freely through the compost, and liberal supplies are necessary during their period of activity; but when the season's growth is completed only enough water will be needed to keep the soil moist. Phaius are strong-rooted plants and need rather a retentive compost. Good fibrous loam, with the dusty particles shaken away, should form the principal ingredient, with a little Osmunda fibre and spagnum-moss in a lumpy condition, add sufficient crushed crocks to keep the whole porous and well mixed together. The plants are best grown in intermediate temperature, afforded a position where they may receive plenty of air without being subjected to draughts. The species P. tuberculosus and P. simulans are benefited by a slightly warmer temperature.

Phalænopsis amabilis, P. Schilleriana, and P. Stuartiana, having passed out of flower, are commencing to make new leaves and roots. These plants should be afforded fresh rooting materials each year, those growing in teak-wood baskets that have become decayed should be provided with new receptacles. First immerse the baskets in tepid water for a short time, this will cause the roots to be more easily detached from the wood. The wire that holds the basket together should be cut and the bars of wood removed singly, at the same time carefully detach the roots with the blade of a thin knife. If the baskets are in a sound condition carefully remove the old materials from between the roots, and afterwards wash the inside of the basket and roots by syringing with clean tepid water. Then fill the spaces

between the roots with fresh compost. Phalænopses can be grown equally well in ordinary Orchid pans. But whichever receptacle is used it must be well drained, using clean crocks for the purpose, over which place the sphagnum-moss and Osmunda fibre in equal proportions, and finish with a layer of clean heads of sphagnum-moss over the surface. This should be lightly sprayed twice daily, in order to cause it to become green and healthy, until the plants are rooted freely into the compost, when they should be given liberal waterings all through the summer months, but the materials should be allowed to become rather dry between each application. The plants should be shaded from the sun's rays during the spring and summer. They delight in a high day temperature from sun-heat if moisture and fresh air are afforded. They may be either suspended from the roof rafters or placed on the stage on inverted pots standing in saucers of water. On the approach of winter water should be afforded in reduced quantities.

CYMBIDIUMS.—Since the introduction of Cymbidium insigne many distinct and beautiful hybrids have been produced by employing this fine species as a parent plant. The graceful flower spikes and rich colourings of the flowers cause them to be invaluable for decorative purposes either when growing on the plants or as cut flowers. The majority of these plants bloom during the spring months, and any necessary repotting should be done soon after the flower scapes are removed. They resent too frequent root disturbance, therefore this should only take place when the compost has become exhausted, or the plants have outgrown their receptacles. The roots are thick and fleshy, and as they are freely produced, ample pot-room must be provided. A strong rooting medium is needed, which may consist of one half its bulk good fibrous loam, and the rest half decayed oak leaves and Osmunda fibre; incorporate sufficient broken crocks to ensure porosity. When repotting disentangle the roots as much as possible without breaking them, and pick out loose portions of the old compost with a pointed stick, place clean crocks in a pot to about one quarter their depth. Work the compost between the roots, and when finished the surface of the soil should be one inch below the rim of the receptacle. All these Cymbidiums grow well in the cool Odontoglossum house. Cymbidiums are now extremely popular, and as they are not difficult subjects to raise from seeds it is quite possible that the future will see a large increase in the various hybrids.

OBITUARY.—We much regret to record the death of Mr. Tom Worsley on April 8th, aged 39. Mr. Worsley resided at Carter Place Hall, Haslingden, Lancs., where he had formed an excellent collection of Orchids, the principal feature of which was a fine selection of over a thousand choice Cypripediums.

ACINETAS.

ALTHOUGH the genus Acineta is not a large one, there are a few species worthy of being included in a miscellaneous collection. Rather a high temperature is required, and on account of their pendulous spikes the plants are best suspended from the roof when in flower. Some cultivators grow them in baskets all the year through, and only take them down occasionally for the purpose of applying water. The large pseudobulbs carry plaited leaves, and produce the many-flowered inflorescences from their base.

A. Barkeri was originally discovered by Ross in a dark ravine in the neighbourhood of Xalapa, in Mexico, in 1837, and sent home to Mr. Barker, in whose garden at Springfield, near Birmingham, it flowered in 1838. Flowers somewhat globose in shape, fragrant, golden-yellow, with a sanguineous spot on the lip, and a few red spots on the base of the petals. Most collections of olden times contained one or more plants of this fine species.

A. densa is a native of Turialba, in Costa Rica, where it was discovered in 1819 by Warscewicz, from whom it was obtained by Mr. G. Ure Skinner for the Horticultural Society. It appears to have first flowered under cultivation in the collection of Bishop Sumner at Farnham Castle. Although it has the reputation of being a shy flowering plant, this may be only a matter of cultural detail. The pendulous racemes, which extend to a length of 2-3 feet, bear many flowers of bright yellow colour; the petals spotted with red, the spots aggregated towards the base; the fleshy lip densely spotted and blotched with reddish-brown.

A. superba is the earliest specific name of the plant well-known in gardens as A. Humboldtii. The following botanical history of this handsome plant is given by Messrs. Veitch in their Orchid Manual: "According to Dr. Lindley it was discovered by the great traveller Humboldt and his companion Bonpland, growing on trees in the temperate parts of Tumbez near Zaruma, in Peru (now Ecuador); it was also found by them cultivated in a garden at Loxa, at 6,000-7000 feet elevation. The description and figure of the plant in Humboldt and Kunth's *Nova Genera et Species Plantarum* caused a desire, even in the early days of Orchid culture, to see it in European gardens, and the surprise was great when Dr. Lindley announced that the plant figured in the *Botanical Register* as Peristeria Humboldtii was without doubt the Anguloa superba of Humboldt, in whose figure, however, the raceme is made to grow erect instead of pendulous. The first living plant seen in England was imported by Mr. Wilmore, of Oldford near Birmingham, not, however, from Ecuador, but from Porto Cabello in Venezuela, many hundreds of miles distant, and it flowered in his garden in March, 1842, and was figured in the *Botanical Register* as Peristeria Humboldtii. Subsequently Prof. Reichenbach saw or possessed

specimens of this species gathered by Wagener in Caracas, and by Schlim near Ocana, and it is probable that the plants cultivated in more recent years originated in that region. Although there is nothing improbable in the same species of Orchid occurring in localities 1,000 miles apart, it is a curious circumstance that the Ecuadorian origin of Acineta Humboldtii does not appear to have been confirmed by its re-discovery in that country." A. superba (Humboldtii) straminea is a variety with straw-coloured flowers, and with few dots in its inner parts. It was introduced from Colombia by Mr. Wm. Bull and described in 1872.

A. Moorei is a comparatively new species. In 1903 a plant was purchased from Messrs. Sanders for the Royal Botanic Garden, Glasnevin. It flowered for the first time in 1905, and again four years later. The flowers are sub-globose in formation, straw-coloured, closely punctulate with brown spots. It is figured in the *Botanical Magazine*, t. 8392.

A. Hrubyana (colossa) was exhibited by Sir Fred. Moore at the Royal Horticultural Society, August 23rd, 1898, under the name A. colossa, when a Botanical Certificate was given. The flowers were described as light whitish-yellow, with a few dull purple markings towards the base of the lip, and the column pubescent. The following year this species flowered in the collection of Pantia Ralli, Esq., Ashtead Park, Surrey, and was then considered identical with the rare A. Hrubyana, which had been imported from Colombia by Messrs. Sanders. A. Hrubyana was described as differing from all known species of the genus in the narrow, erect side partition of the lip, and in the white colour of the flowers, which have only a few purple spots inside the lip.

A. sulcata was described by H. G. Reichenbach in 1879. He remarked "If it had not two special features at once I would not dare to name it, since I have but a single flower at hand which looks like a yellow Acineta Humboldtii. It was very queer sulcate 'sella turcica,' with two teeth in front, and two larger and two smaller ones on the base; then there are exceedingly developed wings lying on the hinder side of the side partitions, adnate a greater part to them; finally, a good part of the column is hairy." —*Gard. Chron.* 1879, p. 652.

THUNIA VEITCHIANA.—In 1885 the first hybrid Thunia appeared, and, strange to relate, the same hybrid was raised by two different persons, first by Mr. Toll, of Manchester, and soon afterwards by Mr. Seden, in both cases from T. Marshalliana crossed with T. Bensonæ. Examples of both were exhibited simultaneously in 1885, the former as T. Wrigleyana, the latter as T. Veitchiana. The description appeared under T. Veitchiana. The plants should be potted in fibrous loam with some peat and sand, taking care that ample drainage material is provided.

CATTLEYA SCHRŒDERÆ, A BEAUTIFUL VARIETY IN THE COLLECTION OF CLEMENT MOORE, ESQ., HACKENSACK, N.J., U.S.A.

GHENT QUINQUENNIAL EXHIBITION.

THE 18th International Horticultural Exhibition promoted by the Société Royale d'Agriculture et de Botanique de Gand, Belgium, and opened on Saturday, April 10th, by the King and Queen of the Belgians, accompanied by members of the Royal family, was in every way a great success. The standard of excellence seen in the various exhibits exceeded expectations, while during the six days that the exhibition remained opened many thousands of visitors crowded the pathways that intersected the masses of foliage plants and brilliant flowers.

Among the Orchidologists who assisted in judging the various exhibits we may mention: Lord Lambourne (President), Sir Jeremiah Colman, Bart., and Mons. Firmin Lambeau (Vice-presidents), Messrs. Gurney Wilson, Louis Sander, Fred. K. Sander, R. Brooman White, F. A. Peeters, J. E. Shill, H. H. Smith, Ch. Sladden, Th. Masy, J. Collier, Ch. Dietrich, A. Janssens, G. Lanthoine, A. Marcos, Ch. Maron, Stuart Low, H. T. Pitt, Jas. Whitton, C. W. Matthes and Sir Fred. Moore.

The Large Gold Medal presented by the King of Belgium was awarded to M. Firmin Lambeau, who exhibited an extensive collection of well-cultivated species and hybrids. The Miltonias included M. Bleuana var. Roi des Belges, the white petals bearing large blotches of bright purple, M. Bleuana var. Reine Elisabeth, with purplish area at the base of each petal, M. G. D. Owen, and M. Firminii, in which the labellum was prettily lined and spotted with rose-purple. The centre of the group was composed of a dozen specimen plants of Odontoglossum eximium xanthotes, surrounded by elegant Brassocattleyas, among them being Albion with four white flowers, Joan, golden-yellow, and amabilis, with a couple of elegant flowers, the labellum being surrounded with a rose-coloured band. There were several fine specimens of Cypripedium Maudiæ, of C. Gowerianum, Gratrixianum, and a richly coloured variety of C. Wm. Lloyd. Lælio-cattleya Carmencita was especially good, and the Cattleyas were represented by Edithæ, white with a yellow throat, and the pleasing C. citrina. Along the back rows were to be seen grand Cymbidiums, a fine variety of Ceres with a tall, erect spike being unusually noteworthy. There were also numerous Odontoglossums, Odontiodas, as well as Phalænopses and many examples of spring flowering Cattleyas and their hybrids.

For the best collection of 100 Orchids, M. Chas. Dietrich was awarded the 1st Prize—An Œuvre d'Art of the value of 500 francs. This exhibit contained several specimen Cypripediums, including Maudiæ with six flowers and Lawrenceanum with eight. Cattleya Evelyn Sander had pure white flowers, C. Empress Frederick was represented by a delicate variety with several flowers, and C. Tityus by that distinguished as Premier

Minstre Theunis. Miltonia Bleuana was well staged, as also was M. vexillaria and M. St. Andre. Læliocattleya luminosa aurea and Lc. Primrose were in front positions, the latter bearing delicately tinted blooms. Mention may also be made of a fine example of Oncidium Cavendishianum, Brassolæliocattleya Cliftonii, Lc. Wellsiana, Slc. Meuse, with four rich purple-coloured flowers, Lycaste Skinneri with many blooms, and large plants of Cochlioda Nœzliana. Odontoglossums included Wilckeanum aureum, with flowers of golden-yellow colour, and a similar tint was seen in Cattleya citrina.

Dr. G. Ballion of Ghent was awarded the 2nd Prize for the best collection of 100 Orchids, the 1st Prize for the best collection of 50 Orchids, and the 2nd Prize for the best 30. His plants included a very choice selection of Odontoglossums and Odontiodas, numerous Cymbidiums, various Cattleyas, Læliocattleyas and Brassavola hybrids, while at one end were many excellent Cypripediums and in another section a mass of Miltonia vexillaria including most of the G. D. Owen hybrids. This amateur was also successful in winning 1st Prizes for the best collection of Miltonias and the best lot of twenty-five Cymbidiums.

Sir Jeremiah Colman, Bart., was awarded the special Œuvre d'Art offered by M. Tillier. This well-known amateur exhibited a most praiseworthy and representative group. It contained the elegant Brassocattleya speciosa var. Lady Colman, B. Cliftonii magnifica, three fine plants of the superb Læliocattleya J. F. Birbeck, the pretty Cœlogyne Sanderæ, with many-flowered spikes, Dendrobium Victoria Reginæ, Odontiodas in rich variety, as well as many fine white and blotched Odontoglossums. Among the Lycastes were Skinneri alba, another pretty variety named Robin, the renowned Skinneri armeniaca with apricot-coloured flowers, and Lycaste Luciana. Among the interesting Bulbophyllums were tremulum and others of its kind, also a wide selection of Masdevallias, several examples of Sarcochilus, and the elegant *Zygocolax* Perrenoudii, with rich violet-purple colouring on the lip. Conspicuously placed were several beautiful Odontoglossums, as well as Odontioda Lady Colman, with flowers of an intense scarlet colour. Cymbidiums were well represented and formed an effective background, while in the front row were Odontoglossum aspersum, always attractive, Angulocaste Cooperi, the quaint Eria ferruginea, and last, but not least, a fine example of Æridovanda Mundyi, which received the 1st Prize for the best novelty obtained by crossing different genera.

M. le Comte Jos. de Hemptinne was awarded the Œuvre d'Art offered by M. Firmin Lambeau. This exhibit comprised many fine specimens, and almost every plant had been raised in this amateur's own garden. The Odontiodas included several distinct varieties of Sultan, one having as many as seventeen well-developed flowers, while in Oda-

loochristiensis the spike was much branched. Od. crispum Mossiæ was in fine form, also Od. crispum roseum and Od. Rolfeæ. Along the back were many superb Cymbidiums, the pretty Odontoglossum Thompsonii and Od. Vulcan var. Tutankhamen, in which the sepals bore immense solid blotches of pyramidical form. Od. crispum xanthotes was in fine form and Od. Perle de Steppe carried a grand spike of eleven large flowers, white, prettily marked with rose-purple, and awarded the 1st Prize for the best Odontoglossum hybrid. There were several excellent Miltonia hybrids, including Bleuana and St. Andre, as well as fine plants of Od. Thompsonii. The 1st Prize for the most meritorious lot of Cymbidiums was also awarded to this exhibitor.

Messrs. Charlesworth & Co. exhibited a very fine group in the non-competitive section. The central area contained several examples of the Premier type of Odontoglossum crispum, two of them being of outstanding merit. Odontonia Olivia carried two large flowers of golden-yellow colour, the lip marked with brown, while Odontonia Dora and O. Ceres were much appreciated. Potinara Juliettæ had flowers of a pleasing wine-purple colour, and Læliocattleya Primrose bore three flowers of a soft primrose-buff tint. Several handsome blotched Odontoglossum hybrids were of grand formation, and Brassocattleyas included a fine variety of Apollo. The quaint Cirrhopetalum Rothschildianum, as well as other rare species, made a striking contrast to the large Cattleya hybrids that occupied prominent positions. The various novelties staged by this firm were of considerable interest. Awarded Œuvre d'Art.

Messrs. Sanders were awarded the 1st Prize for a superb group of 50 Cymbidium species and hybrids. Among the best were Nelly var. Goldstar, cream coloured with a reddish blotch on the lip; Kittiwake var. St Andre, white with a spotted lip; Redstart, in which the lip was handsomely barred with crimson; Alexanderi var. Peerless, ivory-white; Alexanderi var. Amber; several distinct varieties of Pauwelsii; Yellow Hammer, Butterfly and Nelly var. Rosy Morn, very beautiful, with rose-pink colour on the lip. The combination of handsome foliage and graceful spikes of flowers made a splendid effect and met with much approval.

Messrs. Stuart Low & Co. were awarded the Œuvre d'Art presented by M. Ch. Dietrich for the best collection of 100 Orchids, as well as the 1st Prize for the best collection of hybrids. In prominent positions were Cattleya Suavior, Low's variety, having the petals flushed with purple, and a fine specimen of Oncidioda Stuart Low. Cymbidiums included the elegant Alexanderi album, and a richly marked variety of Lowgrinum. Cattleya Empress Frederick was well represented, as also was C. Schrœderæ, and there were many fine Læliocattleyas, including Caroline and luminosa aurea. The curious Cœlogyne pandurata and C. ochraceæ

were noticed, and a fine example of Bifrenaria Harrisoniæ received much attention. Cypripediums included robust plants of Maudiæ and Jas. H. Veitch. Several elegant Odontoglossums, the fine Oncidium McBeanianum and various Miltonias occupied the front rows. Od. cordatum, Low's variety, the darkest form known, and Dendrobiums in variety were in fine condition.

Mons. Ch. Vuylsteke exhibited a splendid selection of Odontiodas, probably the best being Cardinal Mercier with a spike of twelve rose-magenta coloured flowers. Others were Othello, with bold scarlet blotches and Pomone, with a spike of ten flowers tinged with bright rose on the inner parts of the segments. Albert I was a large flower having rich scarlet blotches, while another named Baron Ruzette had blotches of red on all the segments. Although progress in improving Odontiodas is now effected more slowly, this group proved that finality has by no means been reached.

Messrs. A. & G. Janssens were awarded the 1st Prize for the best collection of thirty Orchids. They staged Odontoglossum Lawrenceanum, with a fine spike of twenty-five flowers, Cymbidium Pauwelsii var. Yellow Prince, several well-flowered Odontiodas, Miltonias in variety, and Cattleya Suzanne Hye de Crom. This firm also exhibited twenty-five excellent examples of Cypripedium Maudiæ, one having five flowers.

Messrs. Bier & Ankersmit had an extensive group of Cymbidium insigne and its hybrids. The plants were excellent examples of successful cultivation, and came in for much appreciation. In the centre was C. insigne Bieri, a grand variety with a spike of fourteen flowers, tinged with rose-pink and having the lip unusually well marked with crimson.

Mons. René Behiels received the 1st Prize for the best lot of twenty-five Dendrobiums, which consisted of grand plants of D. Wardianum that had been under cultivation for about fourteen years. The bulbs were three to four feet in height and carried numerous flowers. Mons. Behiels also received the 3rd Prize for a collection of fifty Orchids.

Mons. Maurice Verdonck was awarded the 2nd Prize in the class for 100 Orchids, this collection including several elegant varieties of Cypripediums, Cattleyas, Brassocattleyas, Cymbidiums, Odontoglossums and Miltonias. M. Verdonck also received the 2nd Prize in the class for the best Cattleya, this being C. Suzanne Hye de Crom.

The Society Louis Van Houtte was awarded the 1st Prize in the class for the most important Odontoglossums raised from seed, the group comprising many excellent varieties of O. eximium xanthotes.

Mons. Emile Praet received the 2nd Prize amongst trade growers in the class for fifty Orchids. The best plants being Cypripedium Maudiæ, Cattleya Mossiæ, C. Lawrenceana, Lycaste Skinneri and various Oncidiums.

In the class for twenty five Cypripediums the 1st Prize was awarded to Mons. A. Maes-Braeckman, the finest being Cypripedium villosum with thirteen fully developed flowers. Others were Neptune, very distinct, Maudiæ, Beechense and Leoniæ.

Dr. G. Ballion received the 1st Prize for the best collection of fifty Cypripediums and a similar award for the best twelve Odontiodas. For the best Dendrobium, Sir Jeremiah Colman, Bart., was placed first with a hybrid of the Cybele type, and Mons. René Behiels second with a fine specimen of D. Wardianum.

For the best Læliocattleya, Mons. Firmin Lambeau secured the 1st Prize with Lc. Isabel Sander, with white sepals and petals, the lip broadly developed, bright purple and margined with white. Sir Jeremiah Colman, Bart., came second with Lc. J. F. Birbeck, a grand flower, of which two other specimens were included in his group.

For the most beautiful Cattleya hybrid Mons. Firmin Lambeau secured the 1st Prize with C. Vishnu var. Jacques Lenten, carrying three snow-white flowers. For the best lot of Lycaste, Sir Jeremiah Colman came first, and he also received the 1st Prize for the best variety, this being L. Skinneri Mrs. Hamilton Smith. Mons. J. Van de Putte obtained the 2nd Prize in the class for Lycastes and a similar award for L. Skinneri alba.

M. Jean Van de Putte was awarded the 1st Prize for the best lot of Oncidiums, they included many excellent specimens of O. Cavendishianum. For the best Cœlogyne, Sir Jeremiah Colman came first with a grand example of C. Lawrenceana, he also obtained the 2nd Prize in the class for the best Odontoglossum hybrid, this being a pleasing variety of O. Prince Edward, and was again successful in receiving the 2nd Prize in the class for twelve Odontiodas.

Mons. Firmin Lambeau was awarded the 1st Prize for the best Cypripedium hybrid by staging C. memoria Sam Wienez, a handsome flower having the broad dorsal sepal suffused with crimson-purple. Sir Jeremiah Colman obtained the 1st in the class for an Orchid novelty by exhibiting Brassolæliocattleya Caligula var. memoria Comte Oswald de Kerchove, a fine result obtained by crossing Bc. Cliftoni magnifica with Lc. callistoglossa.

For the most varied collection of Odontoglossums, Count Joseph de Hemptinne was placed first. In the class for the best Masdevallias Sir Jeremiah Colman had an interesting selection and received the 1st Prize; he also obtained a 2nd Prize in the class for an Orchid hybrid.

CYPRIPEDIUM NITENS.—This hybrid between villosum and insigne was raised by Seden for Messrs. Veitch. The flower has the lustrous surface of C. villosum, which suggested the name nitens, "shining."

ROYAL HORTICULTURAL SOCIETY.

March 27th, 1923.

MEMBERS of the Orchid Committee present :—C. J. Lucas, Esq. (in the chair), Messrs. Jas. O'Brien (hon. sec.), F. J. Hanbury, Richd. G. Thwaites, S. W. Flory, A. Dye, H. G. Alexander, Fred. K. Sander, Gurney Wilson, E. R. Ashton, H. T. Pitt, H. H. Smith, A. McBean, J. E. Shill, T. Armstrong, W. J. Kaye, and the Hon. Henry D. McLaren.

AWARDS OF MERIT.

Odontoglossum Aurora var. Rajah (Lambeauianum × Rossii), from Messrs. Sanders. This neat little plant carried a spike of three flowers, closely resembling the latter parent in the formation of the segments, the sepals and petals almost covered with chocolate-red blotches, the broad labellum white, flushed and streaked with pale carmine.

Læliocattleya Nora (C. Nortia × Lc. Dominiana), from Messrs. Cowan & Co. An excellent flower of model shape, the broadly formed sepals and petals of soft rosy-mauve colour, the almost orbicular labellum flatly displayed and rich ruby-crimson in colour.

Cattleya suavior, Low's var. (intermedia Aquinii × Mendelii plumosa) from Messrs. Stuart Low & Co. A remarkable result in which the well-known peloriate characters of the former parent are perpetuated in a stronger degree, possibly because the Mendelii was a variety having purple feathering on the petals. The hybrid carried a single flower, the petals resembling the labellum by having more than half their surface coloured with purple.

GROUPS.

Messrs. Cowan & Co. were awarded a Silver Flora Medal for an excellent exhibit of Cymbidium hybrids, all being finely cultivated, and with tall erect spikes in the case of those having a large proportion of insigne in the parentage. They included Sybil, of a pleasing yellow colour, Redstart, of rose-pink Gottianum, ivory-white, Castor, cream coloured, and Alexanderi, with crimson spotting on the lip. Others worthy of mention were President Wilson, Thrush, Dryad and Vesta. An interesting species that is considered a difficult subject to cultivate was seen in Cymbidium Devonianum, which carried a finely developed pendulous spike. Hybrids of C. insigne are now so popular that the older type of C. Lowianum is not often seen, hence the fine specimen of this latter species made a pleasing contrast.

Messrs. Sanders received a Silver Flora Medal for an interesting group containing in the centre Læliocattleya Rheims, with two very large flowers, also Lc. Orange Blossom, obtained by crossing Lc. Elinor × Lc. Trimyra. Cattleyas included the white Avalanche, and another called Dawn, with

delicate tints on the lip. Cattleya citrina and Dendrobium atroviolaceum were in the front row, and the interesting Bulbophyllum tremulum with its constantly moving labellum came in for much attention.

Messrs. Flory & Black secured a Silver Banksian Medal for a neatly arranged group in which the centre was occupied with Blc. Boadicea, a new hybrid between C. Mendelii and Blc. Queen of the Belgians, while on either side were several albino Cattleyas, the best being C. The Bride, in which the yellow has almost vanished from the lip, and C. Trenkino carrying a spike of four medium sized white flowers. Hybrids of Sophronitis were represented by Sc. Mrs. F. Wellesley and Slc. Marmion, the latter having five reddish coloured blooms. Cattleya G. P. Walker var. Distinction much resembled a glorified Mendelii.

General Sir Arthur Paget, Warren House, Kingston Hill (gr. Mr. W. J. Newton) exhibited Cymbidium Lady R. Paget (insigne × Butterfly) a very pleasing hybrid, the plant carried a tall spike of eleven flowers buff-yellow, the labellum stained with rose and marked with reddish lines and spots.

Sir George H. Kenrick, Whetstone, Edgbaston, staged Dendrobium Niobe (nobile × tortile), in which the segments were prettily twisted, of light rose colour, the lip bearing a deep maroon-purple blotch.

Lady Aberconway, Bodnant, N. Wales (gr. Mr. F. Puddle) sent Cypripedium Psyche, Bodnant variety (niveum × bellatulum), porcelain-white with small purple markings.

April 11*th*, 1923.

Members of the Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.) Sir Fred. Moore, the Hon. Henry D. McLaren, C. J. Lucas, E. R. Ashton, H. H. Smith, H. T. Pitt, A. McBean, Gurney Wilson, Richd. G. Thwaites, A. Dye, J. Wilson Potter, Fred. J. Hanbury and W. J. Kaye.

FIRST-CLASS CERTIFICATES.

Miltonioda Harwoodii, Ashstead Park var. (C. Nœzliana × M. vexillaria), from Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes). A very charming hybrid with an arching spike of 14 well-developed flowers, larger than usually seen on account of the Queen Alexandra variety of vexillaria having been used. The flowers were of a soft rose-red tint and produced a fine decorative effect.

Læliocattleya Hassalli var. Perfection (Lc. Britannia × C. Warscewiczii var. F. M. Beyrodt), from Messrs. Cowan & Co., Southgate. This plant carried two large flowers, the broad sepals and petals pure-white, except for a small purplish spot on the apex of each petal, inherited from the latter parent. The neatly formed labellum had the whole of the front area and side lobes brightly coloured with crimson-purple.

Cattleya Dr. M. Lacroze var. Excelsior (Octave Doin × Tityus), from Messrs. Flory & Black, Slough. The two large flowers borne by this plant were of large size and of excellent formation. The broad petals were very prettily crisped along their margin, and well balanced by the massive labellum. The colour was bright rose-pink, with a rich purplish labellum and yellow area in the throat. It forms an excellent addition to the series of Tityus hybrids, as well as perpetuating the good qualities of Octave Doin.

AWARDS OF MERIT.

Læliocattleya Faust, Broadlands var. (Lc. Ernestii × Lc. luminosa) from E. R. Ashton, Esq., Broadlands, Tunbridge Wells (gr. Mr. Kent). The spikes of this attractive hybrid carried four flowers of medium size, of rich cinnabar-red colour, the labellum intense ruby-crimson.

Odontoglossum Aureola, from Pantia Ralli, Esq. A fine addition to the yellow section, the spike carried nine large flowers of golden yellow colour, with an occasional red-brown spot. Although the parentage is not known, there is evidence in the flower of crispum and triumphans, the latter producing the yellow colour.

Odontoglossum Aglaon majesticum (eximium × Vuylstekeæ), from H. T. Pitt, Fsq., Stamford Hill (gr. Mr. Thurgood). This handsome hybrid produced an erect spike of seven large flowers, rose-tinted, and having prominently displayed markings of reddish-purple colour on all the segments.

OTHER EXHIBITS.

E. R. Ashton, Esq., Broadlands, Tunbridge Wells (gr. Mr. Kent), was awarded a Silver Flora Medal for an effectively-arranged group containing many fine varieties of species and hybrids. The popular Sophronitis grandiflora was represented by a specimen with 16 flowers, Odontoglossum triumphans var. Lionel Crawshay was in fine form, O. Ossulstonii The Shrubbery var. carried a spike of ten finely-developed flowers, O. Ashtonii had blooms marked with violet-purple, and O. Conqueror of reddish-chocolate. The Dendrobiums included chessingtonense and D. Thwaitesiæ, both with numerous yellow-coloured flowers. Læliocattleya Faust received an Award of Merit, and Lc. Beatrice carried a spike of four pleasing flowers. Among the pretty Odontiodas were the Broadlands variety of Schrœderi, Fairy Queen and Juno. Blc. Camada had a large flower of soft saffron-yellow colour, and the handsome Blc. Veitchii bore a large fringed lip. Cattleya Groganiæ alba (Mossiæ × Trianæ) was an interesting hybrid that does not appear to have been previously exhibited.

Lieut.-Col. Sir George Holford, K.C.V.O., Westonbirt, exhibited Læliocattleya Orange Blossom, with a spike of five medium-sized flowers

of orange-yellow colour, the lip tinged with apricot colour. It is the result of crossing Lc. Elinor with Lc. Trimyra.

H. T. Pitt, Esq., staged Odontioda Zarina (crispo-Harryanum × Oda. Chanticler) with a spike of five roundly-formed flowers of reddish tint.

Chas. Gray, Esq., Cobham, Surrey, exhibited two cut flowers of a Brassavola Digbyana hybrid, white, with slight purple flush on the lip.

MANCHESTER ORCHID SOCIETY.

March 1st, 1922.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, J. Howes, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, E. W. Thompson, J. Thrower, J. Whitham, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Senator (Gladiator × Lord Wolmer), large well-shaped flower, handsomely spotted dorsal sepal, margined with white; Odontoglossum promerens var. Prince Henry, large reddish blotches on a white ground; Lycaste Skinneri var. Virgin Queen, one of the best white varieties, lemon-yellow in the throat; from S. Gratrix, Esq.

AWARDS OF MERIT.

Cypripedium memoria F. M. Ogilvie vars. The Chancellor and Leopardinum; from S. Gratrix, Esq.

Dendrobium Bancroftianum and Cypripedium Cardemona (Carola × Desdemona); from P. Smith, Esq.

AWARDS OF APPRECIATION, FIRST-CLASS.

Dendrobium Electrum and D. Orestes; from S. Gratrix, Esq.

Odontoglossum Maillardianum var. Olympia; from Col. Sir J. Rutherford, M.P.

GROUPS.

A Large Silver Medal was awarded to S. Gratrix, Esq., for a group containing many fine Cypripediums and Odontoglossums. A Silver Medal was granted to Jas. Whitham, Esq., Crompton Hall, for a fine exhibit of Cypripediums and Cymbidiums, and a Large Silver Medal to Messrs. J. Cypher & Sons for an exhibit of Dendrobiums, Miltonias and Masdevallias.

Mrs. Gratrix staged Cattleya amabilis sanguinea; B. J. Beckton, Esq., showed the rare Masdevallia deorsa and Pleurothallis ornata, Col. Sir J. Rutherford, Bart., staged some richly-coloured Odontiodas; Messrs. Keeling & Sons had a selection of Vandas, Lælias and Cymbidiums; Mr. D. McLeod showed several fine Cypripediums; and Messrs. Cowan & Co., a cut spike of Cymbidium Coningsbyanum, a very fine variety.

March 15th, 1923.

Members of the Committee present :—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. Giles, A. Hanmer, J. Howes, W. M. Jackson, A. Keeling, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, H. Arthur (secretary), and W. Mansell (visitor).

FIRST-CLASS CERTIFICATES.

Cypripedium Moonstar (Boltonii × niveum), a distinct hybrid of the white type, intermediate between the parents; Cyp. Windsor (Eurybiades × Chardwar), fine shape, with the dorsal sepal well blotched; Dendrobium Cybele majale, the finest form yet seen; Lycaste Skinneri brilliantissima, a fine and richly-coloured variety; from S. Gratrix, Esq.

Odontoglossum crispum Lady Rachel, a fine form with large spots on the sepals and lip; Cattleya Enid alba var. Our Queen, one of the finest of the type, sepals and petals white, lip broad and beautifully coloured; from Mrs. Gratrix.

Lycaste Skinneri hellemensis, a fine example of this richly-coloured variety; from Mrs. Bruce and Miss Wrigley.

Cymbidium Alexanderi, Cussons' var., a grand variety of the reddish-coloured type; from A. T. Cussons, Esq.

Odontoglossum amabile Duke of Portland, of excellent shape and colour; from P. Smith, Esq.

Brassocattleya Somme var. Enchantress, a magnificent variety; from Messrs. Cowan & Co.

AWARDS OF MERIT.

Odontoglossum Mandarin, Cattleya Stuartii var. albina, Lycaste Skinneri var. Pallas, Dendrobium Electrum magnificum; from S. Gratrix, Esq.

Lycaste Skinneri var. His Majesty, Cœlogyne Sanderæ; from Mrs. Bruce and Miss Wrigley.

Cymbidium insigne, Cussons' var., C. Schlegelii var. Kervallii, and C. Venus var. Maydew; from A. T. Cussons, Esq.

Maxillaria Fletcheriana; from B. J. Beckton, Esq.

Cymbidium Alexanderi var. White Wings; from Rev. J. Crombleholme.

Odontoglossum crispum var. Daisy; from A. Hanmer, Esq.

AWARDS OF APPRECIATION.

Rolfeara Queen Nefertiti, Dendrobium Euterpe var. Bridge Hall, D. Perfection var. Burnsiæ; from Mrs. Bruce and Miss Wrigley.

Pleurothallis ornata; from B. J. Beckton, Esq.

Odontoglossum Duke of Cornwall; from Mrs. Gratrix.

Odontoglossum amabile var. Monarch; from A. Hanmer, Esq.

CULTURAL CERTIFICATES.

Mrs. Bruce and Miss Wrigley for Lycaste Balliæ (three plants), L. The Gem, L. Skinneri, L. Skinneri alba, Cymbidium Alexanderi var. Maiden's Blush.

Mr. J. Howes for Cattleya Enid alba superba and Blc. Joan var. Mrs. Gratrix.

GROUPS.

A Gold Medal was awarded to S. Gratrix, Esq., for an excellent group of various species and hybrids. A Silver-gilt Medal was granted to Mrs. Bruce and Miss Wrigley for a fine exhibit of Lycastes and Cymbidiums. Large Silver Medals were awarded to A. Hanmer, Esq., for an exhibit of Odontoglossum hybrids and Odontiodas, and to F. Hardy, Esq., for a group of Dendrobiums in great variety. Silver Medals were given to the Rev. J. Crombleholme for Cymbidiums and Odontiodas, and to Messrs. Cypher & Sons for various species and hybrids. A Silver-gilt Medal was awarded to Messrs. Cowan & Co. for excellent Cymbidiums, Cattleyas and various Brassocattleyas.

Capt. W. Horridge, Bury, staged a collection of cut-flowers, to which Silver-gilt Medal points were awarded. Messrs. Keeling & Sons staged several meritorious Cypripediums and Odontiodas.

April 5th, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, J. Jackson, W. M. Jackson, A. Keeling, J. Lupton, D. McLeod, J. Thrower, E. W. Thompson, J. J. Whitham and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Brassocattleya Imperialis (Bc. Cliftonii × C. Mossiæ), from S. Gratrix, Esq.; a large flower of fine shape; Bc. Joan, Westonbirt var., one of the best yellow forms of this fine hybrid; Cattleya Irene, a grand snow-white variety; Odontioda Colinge var. Redwing, fine form, with richly-coloured blotches on white ground; from S. Gratrix, Esq.

Odontioda Mena rubra (Oda. Lambeauiana × Odm. eximium), a beautiful flower of solid colour, with narrow white margin; Odontoglossum Leander (parentage unknown), very large flowers blotched on a bluish-white ground; from P. Smith, Esq.

Odontoglossum crispum, West Point Beauty, a fine variety of round form, having large reddish-brown blotches on each segment; from Mrs. Gratrix.

(*To be continued.*)

THE ORCHID REVIEW.

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NOTES.

AN ATTRACTION TO FERTILISATION BY INSECTS.—A recent issue of the *Botanical Magazine* includes a coloured plate of Maxillaria Fletcheriana (t. 8949), and calls attention to the fact that the papillæ of the lip are unicellular and globose in this species, giving the surface a "pruinose" appearance, whereas in M. grandiflora and other species, especially in M. Lehmannii and M. molitor they are many-celled and form a yellow fur, which, by the breaking up of the papillæ into cells, is converted into a powdery mass resembling an accumulation of pollen. The information is also given that Janse has studied this phenomenon in M. Lehmannii and Porsch in other species of Maxillaria, and they have found that the papillæ contain abundant starch and act evidently as a bait for insects, who, visiting the flowers to feed on the papillæ, incidently effect pollination. This function is apparently in abeyance in M. Fletcheriana, as the papillæ are reduced to a single cell and destitute of starch.

DENDROBIUM CAPILLIPES AND D. CARINIFERUM.—Two very interesting Dendrobiums have recently flowered in the collection of Lieut.-General Sir A. G. F. Browne, K.C.B., Woodside, Lower Bourne, Farnham. The first is D. capillipes, a dwarf tufted species discovered by the Rev. C. Parish in the Moulmein district of Burmah, and put into commerce by Messrs. Low & Co. in 1866. It belongs to the section Fasciculata, in which the flowers are produced in lateral fascicles of twos and threes, as in D. aureum and D. nobile. The stems are fusiform, 2 to 3 inches long, yellowish. Leaves, one or two on each stem, lanceolate, acute. Flowers sometimes solitary, but generally in pairs and more, on thread-like stalks, in colour golden-yellow, with a deeper blotch on the lip. The specific name refers to the hair-like foot-stalks of the flowers. The variety elegans has taller bulbs and the base of the lip dark orange. D. cariniferum belongs to the section Formosæ, also known as the nigro-hirsute, on account of the young shoots of many of the included species being clothed with short black hairs, such as D. formosum and D. infundibulum. It is

a fairly robust plant with sub-cylindric stems, 6 to 9 inches long, and with leaves narrowly oblong, 4 to 5 inches long. The flowers, borne near the apex of the stem, are fawn-yellow, fading to ivory-white, the lip marked with reddish-orange. The variety lateritia has brick-red on the lip, and the variety Wattii is said to have larger flowers, white, with parts of the lip yellow. D. cariniferum is a native of Burmah, and flowered for the first time in England in Mr. Marshall's collection at Enfield in 1869. The specific name "keel-bearing" refers to the prominently keeled sepals.

ORCHID CULTIVATION IN ASSAM.—Being interested in the cultivation of Orchids, and having a collection of nearly 300 plants, mostly collected locally and all East Indian, I desire to add some examples of South American origin, but am unable to decide exactly what varieties would succeed with me. I have what is called here a grass house, that is, a house built of posts with a wire frame, the wire being interlaced with thatch grass, but entirely open on the north side. This class of house is generally used in the plains of India for the cultivation of ferns, and all our local Orchids certainly thrive in it. The temperature here ranges from 100 degrees in shade during the hot season to 40 degrees in the cold season. The rainfall averages 150 inches, falling during the months of April to September. Can anyone kindly advise me? I am living at the base of the Eastern (Bhutan) Himalayas, and in the jungle quite close are numerous varieties of Dendrobium, Cœlogyne, Bulbophyllum, Cymbidium, Saccolabium, Pholidota, Vanda, Aërides, etc., as well as numerous ground Orchids. Will any readers exchange plants with me?—G. L. HINDE, Angarakhata Estate, Kumarikhata P.O. Kamrup, Assam.

MAXILLARIA FLETCHERIANA.—This attractive species has recently been figured in the *Botanical Magazine* (t. 8949). The late Mr. Rolfe compared it originally with M. grandiflora and M. Sanderiana, but subsequently placed it next to M. Huebschii. The descriptive note accompanying the above-mentioned plate says that "its affinity lies clearly with the first species, and also, though more remotely, with M. Lehmannii and M. molitor. It approaches even more closely to a plant collected by Lehmann on the Rio Pastaya below Banos in Eastern Ecuador, and written up by him as M. Schrœderiana, and in a later writing as M. grandis, Reichb., f. The name M. Schrœderiana has never been published and need not be considered." Messrs. Sanders state that the exact locality where Forget found the plant is not known, but that it was in Southern Peru on the borders of Bolivia, or just inside the Bolivian boundary. It flowered at St. Albans in April, 1913, was named in honour of the Rev. J. C. B. Fletcher, of Chichester, and received an Award of Merit when

exhibited at the Royal Horticultural Society, April 15th, 1913. A similar award was given at the Manchester Orchid Society March 15th, 1923, when a fine example, with a flower stem over 14 inches in height, was shown from the collection of B. J. Beckton, Esq., Irlams-of-th'-Height, Manchester. The large flowers are cream-white, with thin purple lines; lip yellow with some purple markings.

ONCIDIUM CAVENDISHIANUM.—Some very fine specimens of this showy species were exhibited at the recent Ghent Exhibition. The plants are without pseudobulbs, but have large broad fleshy leaves, which probably contain the necessary reserve of food to enable them to withstand any period of drought. The tall erect spikes carry numerous flowers, an inch or more in diameter, bright greenish-yellow spotted with chestnut-red. It is a native of Guatemala, and was one of the first Orchids sent to England by Mr. G. Ure Skinner, being included in a consignment to Mr. Bateman at Knypersley in 1835.

ORCHIDS OF QUEENSLAND.—Contributions to the "Orchidaceous Flora of Queensland," by R. S. Rogers, M.A., M.D., and C. T. White, F.L.S., have been published by the Royal Society of Queensland (*Proc., vol. xxxii., Nos. 9 and 12*). The above is the first and second of a series of contributions to the knowledge of Queensland Orchids, and is the result of a critical examination of material in the Queensland State Herbarium. In addition to descriptions of new species and critical notes, opportunity has been taken of recording any locality records that add to the knowledge of the distribution of any particular species. A figure is given of Acianthus amplexicaulis, a plant originally placed in the genus Microstylis by the late F. M. Bailey, and subsequently removed by him to the genus Listera, but now considered to be more correctly referable to the genus Acianthus. It is distinguished from other Australian members of the genus by the shape of its dorsal sepal. Figures are also given of Zeuzine oblonga and *Z.* attenuata, both new species. In a note on the genus *Zeuzine*, Hooker states (*Fl. Brit. Ind., vi.*, 106): "The appendage between the gland of the pollinia and the pollinia itself is a very curious organ, and its real nature has not yet been ascertained, whether rostellar or pollinar; it occurs only in some species and in these under very various forms, so that it cannot be relied on as a generic character. It is further so difficult of analysis in dried specimens, that much allowance must be made for my description of it." The second contribution is devoted to a revised account of the Queensland species of Habenaria with a key to the Australian members of the genus.

CYMBIDIUM CULTURE IN MASSACHUSETTS, U.S.A.

By JOHN T. W. UFFMAN, Orchid Grower to F. W. HUNNEWELL, Esq., Wellesley, Mass., U.S.A.

THE February issue of the *Orchid Review* contains a very interesting article on Cymbidium culture in Australia by Mr. Arthur Yates. The following account may perhaps interest those who love to grow this beautiful and ever favour-gaining Orchid.

The accompanying photograph of a group of Cymbidiums exhibited at the recent Flower Show at Boston, Mass., hardly gives justice to this pleasing exhibit. The individual plants could only be fully appreciated when seen. In the centre is a plant of C. Pauwelsii with two spikes, each seven feet tall, and carrying 50 blooms; on one side of it is another fine specimen in a 10-inch pot, with five spikes and a total of 102 flowers; C. Beatrice, in a 7-inch pot, has four spikes and 42 blooms, while in the centre of the background can be seen C. Doris with a spike 7½ feet high and carrying 30 fine flowers.

This exhibit received a Gold Medal, and much favourable comment from professionals. Enquiries with regard to the cultivation were so numerous that it may be a matter of special interest to growers if a brief account is given, and the method may be regarded as a new departure in this line. When, nearly six years ago, the writer took over this range of glass, he found the Cymbidiums healthy, but in over-sized pots, and with no inclination to flowering. After splitting the plants and potting them in the usual way, using loam and osmunda, into smaller pots, he thought the difficulty overcome. The result, however, was very disappointing, since the plants failed to produce flowers in any quantity.

As many Rhododendrons and Azaleas are grown here, and consequently are potted in ordinary peat, the thought came to try this material for Cymbidiums. The best plants, after shaking and washing out all the loam of the former shift, were potted in peat with a little osmunda to prevent the peat from souring.

In April, 1921, we were able to show at the Boston Flower Show for the first time a group of Cymbidiums that were out of the ordinary. The exhibit received a Gold Medal, and the grower was given a Cultural Certificate for the superior culture of Cymbidiums. Since then all Cymbidiums have received the same shift into peat, with the result that hardly any failed to do their best with regard to flowering. Bulbs, the size of a fist, are common, as well as two flowering spikes to a bulb. The foliage compares well with that of Cymbidiums generally seen, and is erect and of a very dark colour.

During the growing period an occasional application of fertiliser is given,

CENTRE PART OF THE GROUP OF CYMBIDIUMS EXHIBITED BY F. W. HUNNEWELL, ESQ., AT BOSTON, MASS, U.S.A.

and the plants seem to respond to Clay's Fertiliser readily, if given in small quantity perhaps once a month or six weeks. During the summer months a well ventilated house is given them, and in the winter the coldest house, averaging 50°. The growth is so rapid and vigorous that, contrary to former ideas, we find Cymbidiums are not much disturbed by a frequent shift, *i.e.*, every second year, provided care is taken not to damage the young roots.

ORCHID CULTURE IN DENVER, COLORADO, U.S.A.

By WILLIAM B. BERGER.

IT may be of interest to readers of the *Orchid Review* to learn about the culture of Orchids in Denver, Colorado, where the climate is so different from that of England and even from that of the eastern part of the United States. Here, at an elevation of a mile above sea level, and with extremes of temperature ranging from 95° or so in the summer to an occasional 15° below zero in the winter, it may seem presumptuous to attempt it at all.

But perhaps if one can make the greatest use of the advantage of an almost unlimited supply of bright sunshine and fresh air, something may be accomplished. And by the judicious use of shading it ought to be possible to get the right light conditions the whole year through.

The greatest difficulty seems to be the lack of humidity in the atmosphere. In spite of constant damping down and of pans of water with cheese-cloth suspended in them in front of the bottom ventilators, it is very difficult to keep a nice atmosphere in the house when the humidity outside is only about 15 per cent. Of course, it is not always so dry, once in a while we do get a damp day, but as a general thing it is a constant struggle to keep up the humidity.

As for the elevation above sea level, I do not believe that of itself makes any great difference. At first, when I read of the altitudes at which some of the Odontoglossums grew I thought they would be just the plants to thrive here, but after some years of effort I now know better. Only by keeping them in the very dampest portion of the house will they do anything at all. Odontoglossum citrosum is an exception, and does well suspended near the glass.

The Cattleyas do not seem to mind the dryness so much, and succeed fairly well; one Cattleya hybrid last spring had eighteen splendid blooms. The Cypripediums are another hard problem, and as for the Dendrobiums, the Cymbidiums, and other plants from the eastern hemisphere, I have not so far been able to get them to grow very successfully. The Mexican Lælia, however, really does seem to like growing here, and is by far the easiest to keep in good condition. As an example of how the members of this genus like the climate, a plant of Lælia anceps last summer sent up two strong flower stalks. One of them immediately started blooming, and for four months one after another of the lowest buds on the stalk bloomed, at the same time the upper buds were developing, and finally, about Christmas, the three end buds opened, all fine flowers. Lælia purpurata is also a good grower and blooms very freely.

Altogether, climatic conditions make Orchid culture here a very interesting problem, I believe an experienced grower, making the most of the good

points of the climate and gradually overcoming the bad ones by adapting the house to local conditions, might succeed wonderfully with plants that will not grow well in cloudy, damp climates.

ORCHIDS OF THE ISLAND OF NEW PROVIDENCE, BAHAMAS.

By R. NELSON MUSGROVE, Nassau, Bahamas.

MOST of the Orchids found on the Island of New Providence are, one might say, of botanical rather than horticultural interest. They are small-flowered, but in a great many instances the colouring is bright and a fairly good display is made by them in the Orchid house.

On walking through the coppices the first Orchid that strikes the eye is Oncidium sphacelatum, growing in clumps in the leaf-mould under the trees. Those growing in shade are more robust and with stouter flower spikes than those more exposed to sunlight. Some of the flowers are much more intensely coloured than others, and their flower spikes vary a great deal in length; some I have seen as much as 6—8 feet, others not more than 3—4 feet. I have occasionally come across plants with robust spikes growing from the sides, near the top, of old spikes that have been broken off, and nicely branched.

Along with Oncidium sphacelatum is growing O. altissimum (?) in huge masses with dozens of flower spikes covered with hundreds of yellow and purple flowers, the long dark green leaves making a fine contrast. The plants growing in the leaf-mould seem to be finer than those growing on the lower part of the trunks of trees. On the trunks and branches of the trees overhead there are various Epidendrums growing intermixed with hundreds of Tillandsias, and about them all are festoons of Spanish moss (T. usneoides), this interesting plant hanging in great masses from the top-most branches of the trees to the ground, a most beautiful sight. Polypodium and other ferns also contribute to the scene.

As one wanders on from the drier portion of the woods the ground becomes wet and boggy, indicating the nearness of a pond or lake, and it is here that E. cochleatum is found in abundance, growing on rotted branches and trunks of trees, also on the Mangrove roots, all in great luxuriance, seeming to be enjoying life to the full. In company with this is E. Boothianum and Polystachya minuta or luteola growing together on the branches and trunks of the Cocoa Plum (Chrysobalanus). They seem to like this wood more than any other, though I have found them growing sparingly on the Red Cedar. E. nocturnum is also found; some of the plants I saw were growing six to eight feet up on the trunks of the Palmetto Palm, and their thick white fleshy roots were clinging right down the trunk into the leaf-mould on the ground. This species is also fairly common in the low, rocky

scrub growing sometimes in the leaf-mould at the base of trees. This plant does not do well in cultivation with me, being very bare of leaves, and the flower buds turning brown and refusing to open; doubtless due to some error in cultivation.

In the moist boggy woods is found an Epidendrum with a leaf somewhat like that of E. odoratissimum, but distinguished by being nearly always curled. This is the prettiest of the lot, no two plants having the same shade in the flowers. I have in my house about six plants that have flowered, and the colours ranged from nearly white with purple streaks to intense pinkish-purple. It is not common here. The graceful arching spikes are many-flowered. On leaving the woods and getting into the pine land the eye is greeted by the sight of acres and acres of Bletia verecunda. Here we see this Orchid by thousands, their branched spikes covered with the bright pinkish-purple flowers waving above the grass and low vegetation being very beautiful, and one lingers a little longer, being rather reluctant to go away. I have some very bright specimens growing in pots in great contrast to some of their paler sisters.

Along the seashore in the very dry, sandy soil, with the salt breeze blowing constantly, is where Epidendrum odoratissimum grows in great quantities, and in all sizes from the little plant not very long born to the huge masses with dozens and dozens of bulbs all looking very fit and seeming not to care a button for the parched, miserable-looking vegetation about them. These plants seem to grow quite well on the lower part of the trunks of the Palmetto Palm, and, in fact, on almost anything they come in contact with. The odour from these plants when in flower is noticed long before the plants themselves are seen.

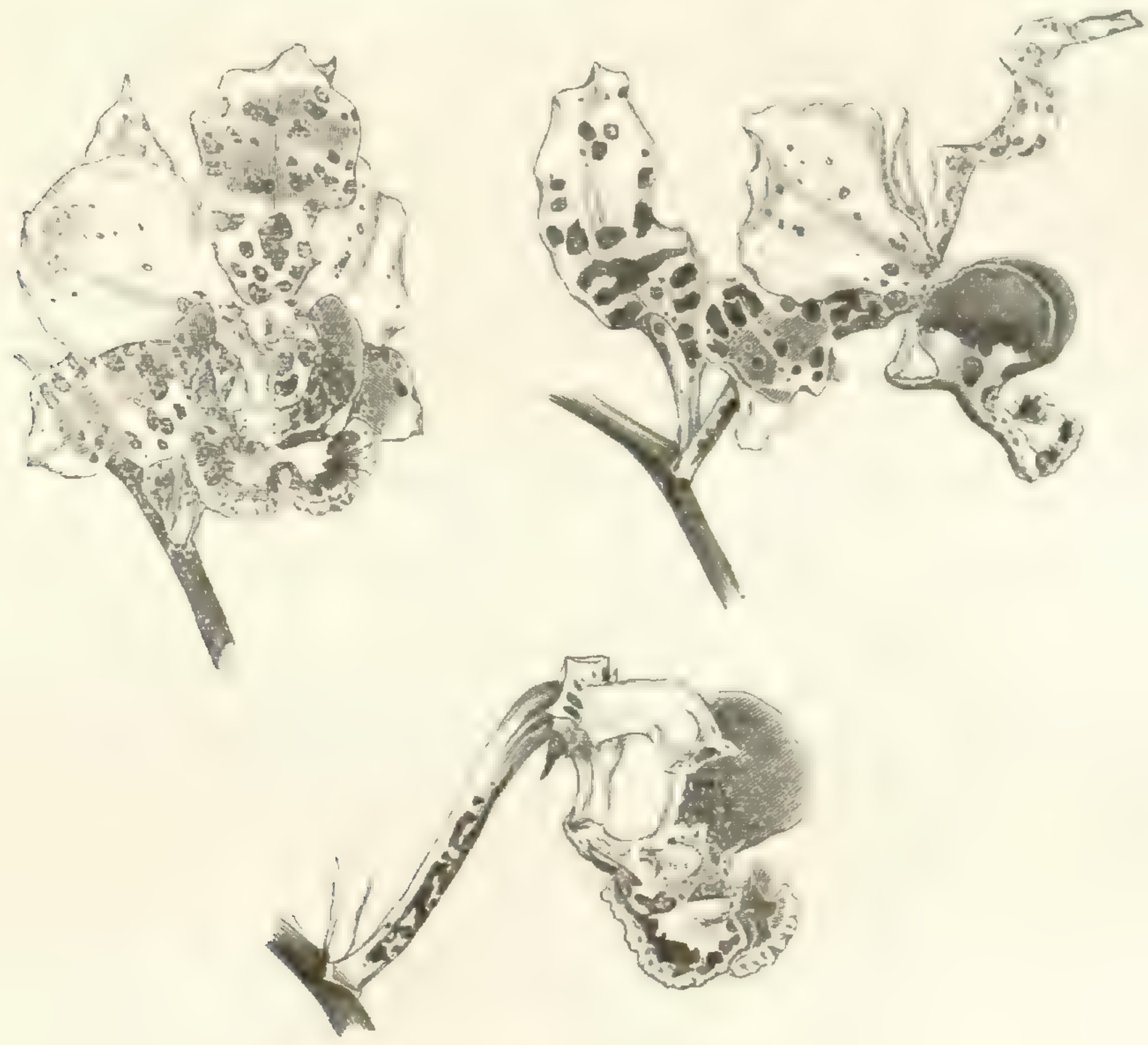
Vanilla articulata is found in the low rocky scrub land running over the bushes and rocks like a green snake for dozens and dozens of yards, apparently without end. There are other Orchids to be met with of less importance, such as Cranichis, Spiranthes, Ibidium, Ponthieva, etc. I have always kept a good look-out for Læliopsis domingensis, but up to the present have not found it, although it is fairly common in the coppice on the island of Andros, to the south about 20 miles, and on the island of Abaco, to the north about 100 miles.

There are several other Orchids found on the other islands of the Bahamas that do not occur here, and I feel quite sure that there are some yet to be found awaiting the careful and diligent searcher. I hope to take in some of these islands on a future occasion, and give a thorough search. I found a curious thing, and only on one occasion, and that was a Bletia growing out of the top of a tree stump, and so firmly fastened that it was impossible to move it the least bit without breaking it, and I could not very well see the roots.

CYRTOPODIUM PUNCTATUM.

THE special feature of the Royal Horticultural Society's meeting of April 24th was an excellent example of the noble Cyrtopodium punctatum exhibited by General Sir Arthur Paget, G.C.B., Warren House, Coombe Wood, Kingston Hill. This plant stood over four feet in height, and carried an erect inflorescence of equal height, the fifteen branches of which bore numerous flowers of bright yellow colour prettily marked with red.

The genus was founded on Cyrtopodium Andersonii, one of the first tropical Orchids cultivated in England. Lindley stated that from its fleshy stems shoemakers obtained a kind of paste or glue which they used for the



CYRTOPODIUM PUNCTATUM.

purpose of their work. C. punctatum was first described in 1832, nearly twenty years after the formation of the genus. It was originally discovered by Plumier, in Cuba, later by Mackenzie in St. Domingo, by Deppe and Schiede in Mexico, in Northern Brazil by Martius, and in Southern Brazil by Gardner. Swainson, who introduced Cattleya labiata, sent C. punctatum to the Botanic Garden at Glasgow, where, some years after, in 1835, its first flowers were seen.

C. punctatum has thick, fleshy stems three or four feet in height, bearing on the upper part many narrow leaves 18-24 inches long. The flower scape is produced from the base of the stem, and at the angle formed by the side branches are leafy bracts of yellowish-green colour thickly barred with

purple-brown. The individual flowers are about two inches in diameter, their formation being well seen in the accompanying block.

Warner and Williams include a coloured plate of this species in their *Orchid Album* (t. 202), published in 1886. This plate was prepared from a grand plant in the collection of the King of the Belgians that had been grown by Mr. Henry Knight in the Royal Gardens at Laeken. The accompanying text states: "We are much gratified to have the opportunity to figure this noble plant, for we may safely assert that it is one of the most noble of Orchids when it is grown into a fine specimen, in which condition we have seen it exhibited in former years, now long ago. We are glad, however, to be able to state that the Orchid growers of the present day are beginning to realise that this grand species is worthy of attention."

The variety known as Saintlegerianum was discovered in Central Paraguay by M. de St. Leger, and exhibited by Mr. A. H. Smee at the Royal Horticultural Society, March 9th, 1886, when it received a First-class Certificate. By some authorities it was regarded as a superior form on account of the markings of the bracts and flowers being of brighter colour.

Cyrtopodiums should be potted in a compost similar to that used for Cymbidiums. They require a warm and moist atmosphere, with liberal watering during the growing season. During the resting season drier and slightly cooler conditions are advisable. The late Mr. J. C. Harvey found Cyrtopodium punctatum growing in great masses in the low hills on the Pacific side of the Isthmus of Tehuantepec, relatively a dry zone, with about forty inches of rain; the wet season being short, not over four months.

KINTA WEED ORCHID.—There is in the Malay Peninsula an Orchid known locally as the "Kinta Weed," found in the Kinta district in Perak. It is of terrestrial habit. Can any reader kindly tell me its botanical name, and whether it is cultivated in this country?—E. W. MOSS-BLUNDELL, Highgate Village, London, N.6.

CYPRIPEDIUM MALFORMED.—From the collection of A. J. Symons, Esq., Samarès, Jersey, we have received a flower of Cypripedium Hera (Euryades) var. New Hall Hey having two distinct dorsal sepals, both perfectly formed; in addition to the pair of anthers normally present in members of this genus, there is in this case an extra one that is prolonged slightly beyond the stigmatic plate. Multiplication of the segments usually results from a vigorous constitution brought about by conditions of cultivation especially favourable to the plant. On previous occasions Mr. Symons has seen flowers with extra petals, and also with two lips, but not one having such a fine pair of dorsal sepals.

COLOURED PLATES OF SIKKIM ORCHIDS.

AT the meeting of the Linnean Society held on April 19th, Dr. B. Daydon Jackson, the general secretary, gave an account of the methods employed in producing botanical illustrations, dealing more especially on this occasion with colour work. Afterwards Sir David Prain instanced the case of Mr. Pantling in preparing coloured plates for his "Orchids of Sikkim," by training eight native boys to colour his special portion of each plate, the last touches being put in by the last boy, completing the colouring.

As most of our readers are interested in the many fine Orchids of the above locality, a few notes on the "Orchids of the Sikkim-Himalaya," by Sir George King and Robert Pantling, will probably prove of value. This important work, published in 1898, consists of four folio volumes with over 450 plates. Three hundred copies were printed. In half the copies the lithographs have been lightly printed, and the flowers and their analyses have been coloured; in the other half the shading in the lithographs has been made darker, and they have not been coloured. The drawings were all put on the stone by natives of Bengal educated at the Government School of Art in Calcutta. The colouring was done by the sons of Nepalese coolies, who had never, until Mr. Pantling took them in hand, been accustomed to use any implement more delicate than a hoe. Mr. Pantling's perseverance and skill in drilling these boys into accurate colourists was considered marvellous by all who had seen them at work. A copy of this book with the plates coloured is in the Editor's library.

From the preface to this work we also learn that as regards the smaller and obscure species of Orchids indigenous to the Eastern Himalaya, the period prior to the publication of Sir Joseph Hooker's account of the family in his "Flora of British India" was, to most people, one of comparative darkness. Descriptions of a number of them indeed existed, but these were scattered in the volumes of periodicals, many of which were accessible only to botanical experts. For many years Mr. Pantling had occupied his leisure by making drawings of the Orchids found on the Government Cinchona Plantation in Sikkim, where he lived since 1882. The preparation of these drawings gradually worked itself into a project for the preparation of a complete Orchid Flora of the Sikkim-Himalaya; each species to be illustrated by a life-size figure of the plant, accompanied by analyses of the parts of the flower on an enlarged scale.

For the exploration of the Alpine part of the country lying between the valley of the Great Rungeet and the higher snows, where it was believed some novelties might be found, a small party of trained Lepcha collectors was sent during the hot and rainy seasons of several years. These men

were provided with a few swift coolies, by whom living plants of every species collected were quickly conveyed to Mr. Pantling, who, while the plants were still fresh, made drawings of them. These collectors were provided with a stock of formaldehyd, in a weak dilution of which they were instructed to preserve inflorescences of every species collected.

CYMBIDIUMS AT THE GHENT QUINQUENNIAL.

IF Orchids were not quite so strong a feature at the Belgian International Show as they are at Chelsea, Cymbidiums were particularly well represented. Practically every exhibit of Orchids included few or many. The Comte de Hemptine, famed for the culture of Cymbidium hybrids, backed his group by some splendid examples, and others were to be seen in the groups of Dr. Ballion, M. Firmin Lambeau and M. Charles Dietrich.

A magnificent group, composed entirely of Cymbidiums—137 plants—staged by Messrs. Sanders, of St. Albans and Bruges, drew many encomiums from visitors. Huge plants of Cymbidium Pauwelsii were prominently placed, and grouped around and beneath them was a choice and very varied assortment of hybrids, including some particularly richly-coloured forms of Cymbidium Ceres (I'Ansonii × insigne), Redstart, Dryad, Nelly, Vesta, Alexanderi, Gottianum, etc., interspaced by some striking insigne (Sanderi) varying from the typical to forms wholly of a rose-red tint, while in others the red coloration of the lip was accentuated by pure white sepals and petals.

Among Cymbidiums this species stands pre-eminent, both in habit and beauty, and its utility as a parent cannot be over-estimated. Its introduction, and use by the hybridist, has brought the whole genus into popularity and probably no other Orchid has, in a comparatively short space of time, been so largely used, nor have such striking results been otherwise obtained.

The Orchid of the Show was a wonderful variety—insigne var. Bieri—exhibited under a glass case by Messrs. Bier & Ankersmitt, who staged a very fine group of well-grown Cymbidiums in the Azalea Hall. The plant under mention is the finest form of this species yet seen, its chief characteristic being the remarkable size of the blossoms. These do not differ greatly in colour from a good form of the type, but are richly tinted, larger, and thick in texture. Both this plant and the others exhibited in the same group, chiefly insigne forms and Ceres, were excellently grown. In the majority the plants carried three, four, and in some cases five huge spikes, well flowered and well coloured. Many were in comparatively shallow tubs, an improvement on the huge and weighty pots many English specimens are grown in.

Most, if not all of these plants, including the variety Bieri, were acquired from Messrs. Sanders, of Bruges, during the last year of the war, so that

the size of the plants exhibited speaks well as to the ease and facility with which Cymbidiums can be grown and increased.

Cymbidium insigne was first described by the late Mr. Rolfe in the *Gardeners' Chronicle* of June, 1904, from a coloured drawing and a dried specimen sent to Kew in 1901. It was said to be allied to C. Lowianum and C. longifolium. In reality, insigne is the outstanding species in the genus. Its globose pseudobulbs, narrow glaucous foliage and the erect flower-spikes, are characters combined in no other species.

The plant was first shown by Messrs. Sanders in February, 1905, and, under the name of C. Sanderi, received a F.C.C. The *Gardeners' Chronicle* described it as "a grand new species of totally distinct character." Messrs. Sanders had received an importation through their collector Micholitz, and distributed the plants under the name of Sanderi.

The original name insigne, of course, takes precedence, but though insigne is a good indicative name, it is probable that the plant will always be more or less remembered and known under its synonym, rightly so perhaps, as with Cypripediums insigne Sanderæ, callosum Sanderæ, and Curtisii Sanderæ, it commemorates the memory of the late Mr. F. Sander, and gives further proof of the wonderful energy and foresight which actuated him in Orchid collecting.

In addition to the F.C.C. given to the original plant shown, three other F.C.C.'s awarded to varieties and three A.M.'s by the R.H. Society is proof of the wonderful variation and beauty of this species. The pure white variety is included in the forms recognised by an Award of Merit. In addition many varieties are known and valued on the Continent, but to the present the culminating form is the variety Bieri. E.C.

BULBOPHYLLUM LIMBATUM.—A small Orchid that had been grown in Messrs. Loddiges nursery at Hackney was described in 1840 by Lindley (*Bot. Reg.*, xxvi., misc., 74) as Bulbophyllum limbatum. He recorded its origin as Singapore, and also described other species from that place with the further record that they were "received from Mr. Cuming." The *Gardener's Bulletin* (vol. ii., No. 12), Straits Settlements, states that "these others are well-known to grow wild in Singapore; but B. limbatum had not been seen again until last year. Hugh Cuming was a great collector, who visited our coasts upon his way to and from the Philippine Islands in 1835 and 1839. Although it is not expressly stated in the *Botanical Register*, it is almost certain that it was he who took the Bulbophyllum to Britain; and as the other Orchids are all species found locally in Singapore, the probability is that the Singapore forests, and not the Singapore port, furnished it." The new locality at which it has been obtained is Kotah Tinggi, in Jahore.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya St. Andre	B. nodosa × C. Dowiana aurea	Sanders.
Brassolæliocattleya Euclid	Bl. Helen × Lc. luminosa	J. P. Mossman.
Cattleya Dawn	Mendelii × intertexta	Sanders.
Cattleya Duchess of York	Empress Frederick × Rhoda	Flory & Black.
Cattleya T. Sohma	Empress Frederick × Mossiæ	Flory & Black.
Cymbidium Canary	Butterfly × Pauwelsii	Sanders.
Cymbidium Madeleine	insigne × Pauwelsii	Maron.
Læliocattleya Dowibel	Lc. Mabel × C. Dowiana	Sanders.
Læliocattleya Elaine	Lc. Hadrian × C. Mendelii	McBean.
Læliocattleya Enidonia	C. Enid × Lc. Clonia	Mossman.
Læliocattleya Gwendolen Leach ..	Capulet × Merciana	F. J. Hanbury.
Læliocattleya Narcissus	G. S. Ball × Mercia	Flory & Black.
Miltonia Westminster	Mem. Baron Schröder × vexillaria G. D. Owen	Sanders.
Odontioda Brilliant	Joan × Chantecler	McBean.
Odontioda Deltilia	Odm. Delte × Oda. Cecilia	C. J. Lucas.
Odontioda Ilona	Oda. Cooksoniæ × Odm. crispo-Harry-anum	R. G. Thwaites.
Odontoglossum Alethea	amabile × King Arthur	McBean.
Odontoglossum Beau Brummel ...	Maillardeanum × crispum	H. T. Pitt.
Odontoglossum Imperial	Colossus × gandavense	Pantia Ralli.
Odontoglossum Muriel	Dido × illustrissimum	Cowan.
Odontoglossum St. Elmo	Admiral Sturdee × Empress of India ...	R. Gerrish.

CATTLEYA SUAVIOR AQUINII.

THE original Cattleya suavior (intermedia × Mendelii) was raised by Seden for Messrs. Veitch & Sons. The exact date of its first flowering is uncertain. The first published record appears to be in Veitch's *Orchid Manual*, 1887, although in the annotated copy of this work used by Messrs. Veitch, and now in the possession of the Editor of the *Orchid Review*, we learn that it was "probably lost—destroyed." A few years ago Messrs. Stuart Low & Co. made several crosses with C. intermedia Aquinii, a remarkable variety in which the petals bear on their outer area blotches of bright purple similar to that of the labellum; it is figured and described in the *Orchid Review*, vol. viii., p. 73. In one instance C. intermedia Aquinii was crossed with C. Mendelii plumosa, the latter also having a purple flush of colour on the tip of each petal, and of the resulting dozen hybrids that have so far flowered two have carried forward this particular colour characteristic. The best one, distinguished as Low's variety, received an Award of Merit, R.H.S., March 27th, 1923, and was also exhibited in their group at the recent Ghent Exhibition. In the second example the petals bore a less prominent degree of colour, and had a cream-coloured band adjoining it on the inner side, thus more nearly resembling the colour scheme of the labellum. The remaining plants all reverted to the typical type in which the petals bear no distinctive markings. Cattleya Dusseldorfei Aquinii has also been raised by Messrs. Stuart Low, and fully described last year (vol. xxx., p. 202).

NOTES ON THE SEGMENTS OF ORCHID FLOWERS.

(*Continued from page* 106.)

IN our first chapter on the segments of Orchid flowers attention was drawn to the fact that the outer whorl consists of three segments called sepals, and in the second chapter it was pointed out that the inner whorl contains a similar number of segments, two of which are known as petals, and the third the labellum, or lip. A glance at the adjoining illustration of Odontoglossum crispum will make clear the relative positions. The labellum is the most important of all the six segments, and it also shows the greatest diversity of structure. Theoretically, it is a petal that has undergone considerable modification, and the different forms it assumes in various genera

ODONTOGLOSSUM CRISPUM.

are very interesting to follow. As these notes are intended for amateurs, it is helpful to point out that the base of the labellum is the end nearest the centre of the flower, the apex is the point marked L. The tooth-like crest also denotes the basal portion.

In the days when Odontoglossum crispum was being imported by tens of thousands, the varieties with spotted segments were much sought after. But this spotting was not equally displayed on all the segments. In nearly every example of O. crispum the labellum bore a few spots, as indicated in the adjoining block; in fact, so common were these spotted-lip varieties that those not so marked realised high prices. Varieties in which the sepals carried a few spots were occasionally seen, but those having the petals

spotted were of considerable rarity. It is somewhat strange why the petals should have been so seldom spotted when the labellum, or third segment of the same whorl, was rarely seen without these colour markings. No reason appears to have been suggested for the different amounts of spotting seen on the various segments of the same flower, although we now realise that these blotched crispums were not themselves pure crispums, but the result of intercrossing with allied species. Now that Odontoglossums are raised artificially in large numbers, and from carefully selected varieties of the highest grade, present-day results almost all show a considerable amount of blotching on the petals. However, when these fine results are critically examined it will generally be found that it is the labellum in which the chief determining points of the plant's parentage are preserved.

Odontoglossum Pescatorei is one of the nearest relations of O. crispum, and although the branching habit of the spike is usually alone sufficient to

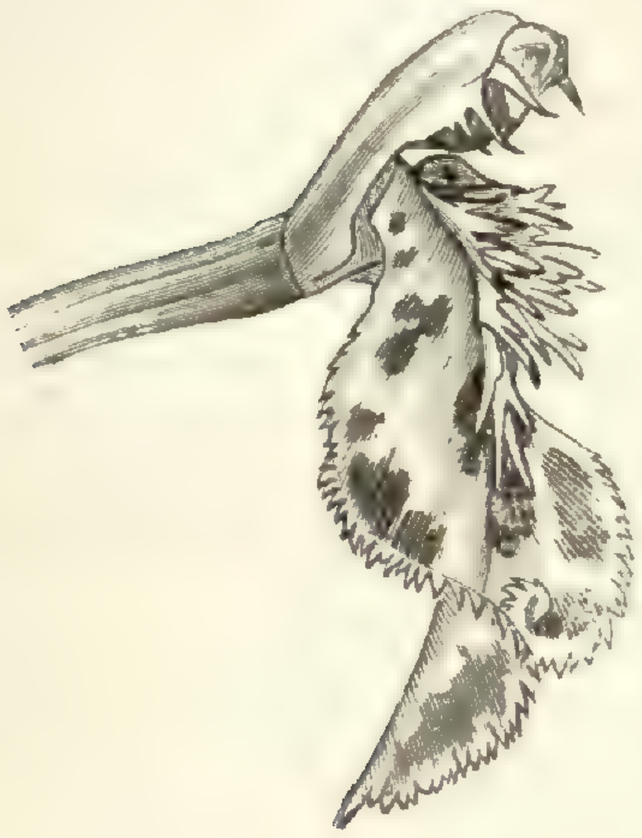
ODONTOGLOSSUM PESCATOREI.

distinguish it, the flowers give other points, an important one being the panduriform, or fiddle-shaped labellum, and another the broad, wing-like crest at the base of this segment. In the side view of the labellum, an apiculus, or spur-like point, marked A, is strong evidence of O. Pescatorei. O. ardentissimum, one of our most popular hybrids, has been produced by crossing crispum with Pescatorei, and in it the various specific points of both parents can be traced.

In other species the labellum is much elongated, a well-known example being O. gloriosum which, with O. crispum, is a parent of the naturally produced hybrid called Andersonianum. To the amateur, these flowers with narrow segments are often very attractive, and their "starry" nature leads the beginner to select them for his collection on account of their truly decorative qualities. But as he advances in his study of the exhibition type of flower he learns that it is those with well developed broad segments

that win the much coveted certificates of recognition. It is often a question as to whether some flowers have not been deprived of their beauty by over development in this respect.

In Odontoglossums the crest at the base of the labellum is well worthy of study, for it varies from the simple tooth-like structure seen in O. crispum to the complicated spiny structure of O. Halli and O. luteopurpureum. This crest is almost invariably of a yellow colour. In O. Rossii it is especially bright, and in O. cirrhosum the same colour is visible, so much so that it has been used in the production of hybrids having a conspicuously yellow-coloured centre.



LABELLUM OF ODONTOGLOSSUM HALLI.

Brassavola Digbyana has the margin of the lip developed to an extraordinary degree, a character that has made it a very attractive subject with the hybridists. When combined with its closely related genera, such as Lælia, Cattleya and Sophronitis, this beautiful fringe is invariably perpetuated, and hybrids of B. Digbyana are to be seen in every collection where warm-house Orchids are cultivated. Dendrobium Brymerianum affords another example of the labellum being conspicuously fringed. It is a regrettable fact that this elegant species does not lend itself more to the production of hybrids, for success has only been achieved in some three or four crosses. One can only hope that with the much improved methods of seed-raising now in use further attempts will be made, for there seems a good field open for combining the rich golden colour of this deeply fringed flower with other favourite members of the genus.

DENDROBIUM BRYMERIANUM.

(To be continued.)

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

CATTLEYAS, LÆLIAS, AND THEIR HYBRIDS. — The weather conditions during the past spring months have not been favourable for the well being of these Orchids. The unusual absence of sunlight has caused the pseudobulbs of many of the plants to be less matured than is general at this period of the year. Cattleya Mossiæ, C. Mendelii, and their innumerable hybrids, together with many Brassocattleyas, are at the height of their flowering season; plants that are not well rooted suffer considerably if allowed to carry their flowers too long, so it is advisable to cut the blooms as soon as they become fully developed. C. Warscewiczii (gigas), C. Gaskelliana, and their many hybrids, are now growing freely, and should be afforded the warmest and lightest position in the Cattleya house. They should be given a more liberal supply of water at the roots, thoroughly soaking the compost through, but allowing it to become moderately dry before moisture is again applied. Cattleya Mossiæ, C. Mendelii, and hybrids, should be looked over as they pass out of flower, to ascertain if additional pot-room or new rooting material is needed. The same remarks apply to C. Warneri, C. Dowiana, with its variety aurea, C. Gaskelliana, and others, that produce their flowers during the late summer and autumn months. In the case of C. gigas the necessary repotting is best done as soon as the plants commence to push new roots from the base of the current year's pseudobulbs. The most suitable rooting medium is osmunda-fibre broken up rather roughly, with a sprinkling of crushed crocks incorporated with it. For a short time after repotting careful watering is necessary. The plants should be sprayed overhead two or three times during bright weather.

WARM GROWING CYPRIPEDIUMS.—Many species and hybrids of the warmth loving Cypripediums, such as C. grande, C. Rothschildianum, C. Stonei, together with the dwarf-growing kinds: C. bellatulum, C. niveum, C. Godefroyæ, and their many hybrids, have recently been in bloom, and as soon as they have recovered from the effects of flowering, and new growths are pushing forth, the necessary repotting should be attended to. None of these plants should be left too long in a pot-bound condition. Fill the pots to about one-third their depth with crocks, and use a compost of equal parts of good fibrous loam, with all the earthy particles shaken out, and osmunda-fibre cut up rather finely and sphagnum-moss with sufficient crushed crocks to ensure porosity. The dwarf-growing kinds will be benefited by some small pieces of limestone being introduced into the compost. During the growing season these Cypripediums delight in being sprayed overhead with clean tepid water during bright weather, but care

must be taken with regard to such species as C. Stonei, C. Rothschildianum, C. lævigatum, and others of this section, that water is not allowed to lodge in the centre of the growths or axils of the leaves, as this is likely to cause them to decay.

VANDA CŒRULEA.—After a season of rest since passing out of flower, plants of Vanda cœrulea have become active at the roots, and the work of repotting should be attended to. Plants that have healthy roots and have retained their bottom foliage should have the old compost picked out from between the roots and replaced with new, while others that have become bare of leaves at the bottom should have portions of the stem cut away to below some of the aerial roots and potted up afresh. The plant should be placed as low down in the pot as possible, filling in between the roots with clean crocks to three-quarters the depth of the pot, and fill up to the rim with a mixture of osmunda-fibre, half decayed oak leaves, and sphagnum-moss, pressed moderately firm, and secure each plant to a stout stick. Syringe frequently between the plants and on the undersides of the leaves during bright weather. The plants should occupy the lightest position in the Cattleya or Intermediate house, and be subjected to but little shade.

VANDA TERES.—This is a very beautiful Orchid that blooms freely at this time of the year, and as soon as the plants pass out of flower their growing season commences. At this period the work of repotting or resurfacing should be done. It is a good practice to grow the plants on long upright teak-wood rafts; these should be placed in rather deep pans and clean crocks placed around the base and surfaced with two or three inches of chopped sphagnum-moss. The plants will soon attach themselves to the raft as they produce aerial roots very freely. This Vanda revels in heat and moisture, with plenty of syringing overhead during the growing season, but when growth is completed it should be placed in the Cattleya house and kept rather dry at the roots.

MASDEVALLIAS.—Many of the Masdevallias are now in flower, and must be protected from all bright sunshine, afforded a cool temperature, and kept clear of thrip insects or the foliage will soon be disfigured. To keep Masdevallias in a thriving condition they should be repotted every two years, and carefully watered at all times. The pretty white flowered M. tovarensis is now starting into growth, and any necessary repotting should be given attention at this period.

DENDROBIUMS.—For a short time after passing out of flower the evergreen section of Dendrobiums, such as D. chrysotoxum, D. thyrsiflorum, D. densiflorum, and their hybrids, should be kept cool, and the roots maintained on the dry side. The necessary repotting should be attended to as soon as roots develop from the base of the young growths. These plants resent too frequent root disturbance, and flower much more freely

when in a root-bound condition than when afforded a liberal rooting space, but plants that are showing signs of deterioration should be removed from their receptacles and potted up afresh, affording them only medium root room. Place them in an ordinary plant, stove, or Dendrobium house, where they may remain during the summer, and when the season's growth is completed water should be withheld gradually, and the plants rested during the winter months in a warm greenhouse. Dendrobiums of the deciduous and semi-deciduous section are rooting freely. The plants should be more liberally supplied with water at the roots, and supports should be afforded the young growths by looping them to the older pseudobulbs, or by tying them to neat sticks. If any of the plants are greatly in need of more rooting space now is a suitable time to remove them into larger pots without unduly disturbing the roots or compost.

ODONTOGLOSSUM CITROSMUM.—As plants of this species pass out of flower, any necessary repotting may be given attention. If the compost they are growing in is found to be at all decomposed they should be taken out of their pots, and all the old materials shaken out, the dead roots cut away, and be potted up afresh in pots or pans of not too large dimensions; perfect drainage aud firm potting are essential. Those growing in receptacles of sufficient size for the present season's growth, and with the compost in good condition, should have a little of it removed from between the roots on the surface and replaced by new. The plants should be afforded a light position in an intermediate temperature, and watered sparingly until the new roots have become active; the compost should be kept moist by overhead sprayings. After the season's growth is finished they should be given a long season of rest under drier and cooler conditions.

PLATYCLINIS FILIFORMIS.—This pretty species should be repotted after passing out of flower, and as soon as new roots are observed to be pushing from the partly developed growths. They are best grown in pans and suspended from the roof in a shady position, in an intermediate temperature. When they have rooted freely into the new compost liberal supplies of water should be given, and the plants sprayed frequently overhead and on the undersides of the leaves all through their growing period as a means of warding off attacks of red-spider. P. uncata and P. glumacea should be afforded similar treatment during their growing season. Lælia anceps in its many varieties are growing freely, and should be given liberal treatment in every respect. They should not be densely shaded; the blinds may be lowered over them in the morning when the sun is so bright as to cause the foliage to become warm, and drawn up again early in the afternoon. The house should be ventilated freely during the hottest part of the day, but closed sufficiently early for the temperature to rise several degrees, when the plants will be benefited by being sprayed overhead.

Later in the evening the house should be again ventilated so as to lower the temperature to about 60° by morning, as the plants do best in a cool night temperature.

SONGS OF THE ORCHIDS.

ANGULOA CLOWESII.

'Neath a curtain of dainty sepals
In a cot of golden petals,
Languorous with fragrant air,
A lullaby lip is lilting
Of love to the heart cradled there.

CYMBIDIUM.

In the singing silence of Rest,
  In the hush of a leafy fold;
She kindled her blossoms to blaze
  On a spike green, arching and bold.

Wide wings in alluring fashion
  Are outstretched expectant of bliss;
And lips that are scarlet with passion
  Are budded for exquisite kiss.

In the pause of a hopeful patience,
  Each blossom a shimmering star;
Loseth nor grace nor lustre
  For lover that laggeth afar.

The glad green light of the springtide
  To the heart of the Summer Queen flows;
But the light of each blossom endureth,
  Outliving the light of the Rose.

J. H. A. HICKS.

DOLLIS HILL,
LONDON, N.W. 10.

LÆLIA ALBIDA.—This pretty little species was first introduced to European gardens in 1832, by Count Karwinsky, who found it growing on the oaks which cover the Cumbre de Molinos, and at San Pedro Nolasko, Mexico.

LÆLIOCATTLEYA CALLISTOGLOSSA.—This large and attractive hybrid between L. purpurata and C. Warscewiczii will always be a favourite with amateurs, and, indeed, it may be said to truly represent one of the most popular hybrids in the warm-growing section of Orchids. It was raised by Seden for Messrs. Veitch, and exhibited by Baron Sir J. H. W. Schröder at the Royal Horticultural Society, March 25th, 1884, when a First-class Certificate was awarded.

THE GENUS ZYGOPETALUM.

THE last few years have witnessed a considerable revival in interest and cultivation of species, especially those having curiously constructed flowers or possessing other attractive qualities. Many of the plants that in the time of our ancestors were well represented in collections are now rarely seen, or at most by comparatively smaller examples. To the newer class of amateurs these species present themselves as novelties, while their correct classification is often a matter of considerable complexity. Thirty years ago the large *Zygopetalum* genus had many admirers, and the following information published at that period in Veitch's *Orchid Manual* is worthy of study to-day.

The limits of a genus are often difficult to define; the difficulty may arise from various causes, and none more so than the progress of discovery. A species may appear in cultivation that was previously unknown to science, and the botanist who deals with it, finding characters in the flowers structurally different from every known genus, creates a new one for its reception. Another species may afterwards come to light having some structural analogy to the former, but at the same time differing from it in some apparently essential character that forbids its being referred to the genus founded upon the former species, or to any other, and in consequence another genus is proposed for its reception. The process may be repeated for a third and even fourth species, and so on. This is precisely what has happened with species now included in the genus under review.

About the year 1826, Mr. Makay, of the Trinity College Botanic Garden, Dublin, introduced from Brazil a beautiful and now well-known Orchid which, on flowering, he submitted to Sir William Hooker, who found it so unlike any described species in the structure of its flowers that he had no hesitation in founding upon it the genus *Zygopetalum*. Some years later another Orchid was discovered in British Guiana by Schomburgk, and a specimen was sent by him to Mr. Bateman, who named it Huntley sessiliflora, but did not publish a diagnosis of his new genus. Lindley subsequently referred other species to Bateman's Huntleya, including H. Meleagris, which was the first that was figured and described, and is thence the type species of that group, and H. violacea figured in his *Sertum Orchidaceum*. But as these two species differ somewhat from each other in the characters of the labellum and column, Reichenbach removed them from Huntleya, referring the first to Lindley's Batemania, and founding upon the second his own genus Bollea.

Then followed the discoveries of Warscewicz in Central America, some of which were constituted a new genus by Reichenbach under the name of Pescatorea, and others under the name of Warscewiczella; and besides

these Lindley referred other species to Warrea which diverge from the type species of that genus far more than they do from that of *Zygopetalum*. Thus a series of genera were founded, all bearing an evident relation to each other, but which on first examination seemed to be sufficiently distinct from each other to require a separate generic nomenclature. As new species came to light from that apparently inexhaustible treasury of Orchid life, the tropical region of Central and South America, the original lines of demarcation were much obliterated, and *Zygopetalum*, Huntleya, Bollea, Warscewiczella, Pescatorea, Warrea (in part) and Batemania (in part) became a confused group of genera, the limits of each of which could not be clearly determined. So long ago as 1863, this unsatisfactory classification became so evident that Reichenbach, when compiling his synopsis of the ORCHIDEÆ for Walper's *Annales Botanices*, merged nearly all of them into *Zygopetalum*, including also his own genus Kefersteinia and Lindley's Promenæa. The propriety of this course was strengthened by subsequent discoveries, so that when Bentham undertook the revision of the ORCHIDEÆ for the *Genera Plantarum* he unhesitatingly adopted it, adding Batemania except the type species, and restoring *Zygopetalum rostratum* (Hook.) and another species which Reichenbach had separated under the name of *Zygosepalum*. The genus *Zygopetalum* thus enlarged may still seem to many horticulturists to be made up of heterogeneous elements that ought to be kept distinct, at least for garden use, but after full consideration we are satisfied that the course adopted by Bentham is that which should be accepted, especially as every fresh discovery tends to confirm it.

The genus is confessedly a polymorphous one, but the following characters fairly circumscribe it. The sepals are sub-equal and spreading, either free or joined at the very base; the lateral two are adnate to the short foot of the column. The petals are similar and nearly equal to the sepals. The lip is affixed to the foot of the column, forming with it a short, obtuse mentum or chin; the lateral lobes are usually small and erect, sometimes embracing the column, the blade large spreading. The transverse crest is very prominent and fleshy, either entire or lobed, rarely fimbriated. The column is incurved, semi-terete, wingless, or shortly winged at the apex. The anther is two-celled, the pollinia four, sessile on the gland or viscid disk that rests on the rostellum.

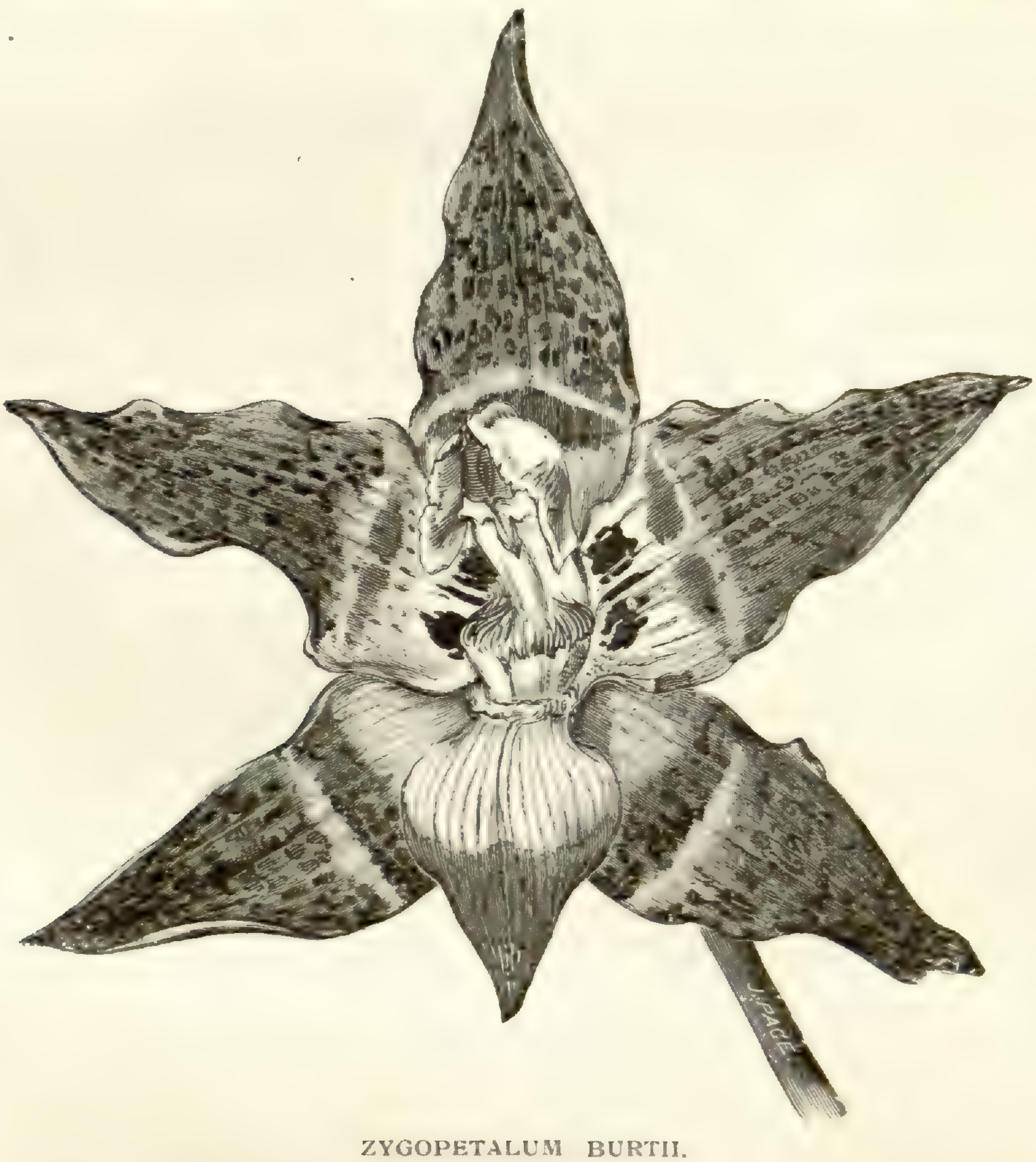
From the above diagnosis it is evident that the prominent fleshy crest, which is often furrowed, rarely fringed, and nearly always more deeply or differently coloured than the other parts of the flower, is the chief distinguishing character of the genus.

In their vegetation the *Zygopetala*, even in the enlarged sense in which the genus is here understood, are remarkably uniform, the most obvious variations being the presence or absence of pseudo-bulbs; the one, two or

many-flowered scapes, and the smaller size of the species hitherto known as Promenæas and Kefersteinias. They are spread over the South American continent from the cooler parts of southern Brazil to the isthmus of Panama; and also over Central America, southern Mexico, and the West Indies.

The following sectional divisions are proposed by Bentham, of which we give the most obvious characters:—

I. EUZYGOPETALUM. Scapes many-flowered; the labellum broad with



ZYGOPETALUM BURTII.

its crest thick, entire or lobed. This includes the type species *Z.* Mackayi, also *Z.* Burkei, *Z.* maxillare, *Z.* graminifolium, and others.

II. ZYGOSEPALUM. Scapes few-flowered, sepals and petals narrowly acuminated. *Z.* rostratum and *Z.* Kegelii, the latter not known in cultivation.

III. HUNTLEYA. Scapes one-flowered; the labellum clawed and its crest distinctly fimbriated; the column broad and crenulate at the apex. *Z.* Meleagris, *Z.* Burtii.

IV. BOLLEA. Scapes one-flowered; sepals and petals broad; the

labellum shortly clawed, the crest thick and elevated; the column broad and arching. *Z.* cœleste, *Z.* Lalindei.

V. WARSCEWICZELLA. Scapes one-flowered; sepals and petals nearly as in Euzygopetalum, but sometimes undulated; the labellum often very broad. *Z.* cerinum, *Z.* cochleare, *Z.* Dayanum, *Z.* discolor, *Z.* Klabochorum, *Z.* lamellosum, *Z.* Lehmanni, *Z.* marginatum, etc.

VI. PROMENÆA. Scapes as in Warscewiczella, but the plants of much smaller size; the column often but not always with raised longitudinal lines on the face below the stigma. *Z.* gramineum, *Z.* stapelioides, *Z.* xanthinum.

Cultural Note.—The species included in the section Euzygopetalum present no difficulty in respect of their cultivation; in fact, the type species, Zygopetalum Mackayi and its varieties are among the easiest of Orchids to grow satisfactorily. For these, pots corresponding to the size of the plants should be selected, in which a drainage of clean broken crocks should be placed to about two-thirds of the depth, and over these a layer of moss to keep the drainage free from the soil above. The compost should consist of one-half fibrous peat and one-half fresh sphagnum, with a sprinkling of silver sand; the potting should be repeated annually when the plants begin to produce new roots. *Z.* maxillare and *Z.* graminifolium, which have creeping rhizomes, and in their native country affix themselves to the stems of tree ferns, should either be attached to pieces of tree-fern stems or to blocks of wood, but they may also be grown in pots. All these species come from the same region as Cattleya Loddigesii, C. intermedia, Lælia purpurata, etc.; their cultural treatment as regards temperature, ventilation, shading, etc., is essentially the same as for that group of Orchids. The winter or resting season temperature should range from 15°—18° C. (60°—65° F.) in the day aud about 3° C. (5° F.) lower in the night, and the summer or growing season temperature should range from 18°—21° C. (65°—70° F.) in the day and about 3° (5° F.) lower in the night. The supply of water must be constant during the growing season, as *Z.* Mackayi roots very freely in the compost, and *Z.* maxillare when on a block has its roots exposed. *Z.* rostratum requires more heat than the Brazilian species, and should have a shady position in the East Indian house. Generally speaking, the *Zygopetalums* require more shade than the Cattleyas and Lælias.

The species included in the section Promenæa are also of easy culture. Being of small size, teak baskets or shallow pans that can be suspended near the glass should be preferred. They may be treated like the smaller Odontoglossums, as Od. Rossii and Od. Cervantesii, during the summer months, but they should be removed to the intermediate house for the remainder of the year.

The disappointing experience of the past twenty years in the cultivation

of the species now comprising the sections Huntleya, Bollea and Warscrewiczella forbids the formulating of any course of treatment for them. Doubtless several causes have combined to bring about the failure to establish this fine group of Orchids in the glass-houses of Europe, but none more so than the withholding of reliable information respecting their general geographical station and their environment *in situ*. All attempts to cultivate them hitherto have been purely empiricisms, and even if the climatic and other conditions cannot be approximately imitated artificially, yet it must evidently be in the interest of importers and collectors to impart such information they possess as may tend in any degree to assist the cultivator.

NOTEWORTHY PLANTS.

DENDROBIUM ARACHNITES.—In the *Orchid Review* of November, 1922, reference was made to Dendrobium arachnites. I have in my collection a plant, originally purchased from Mr. Keeling, that must have been in flower for two months. It has been greatly admired by all who have seen it and also gives me a great amount of pleasure.—A. C. LISTER, Thorpe Lodge, York.

DENDROBIUM ACUMINATUM.—While paying a visit to Messrs. Armstrong & Brown, Tunbridge Wells, my attention was attracted by a splendid plant of Dendrobium acuminatum occupying a basket some ten to twelve inches square and which it had already overgrown. It carried no less than five spikes, one having 21 fully expanded blooms, another bore 21 buds, and the remaining spikes, 18 to 21 buds. The individual blooms are very fine, of a rich deep colour peculiar to this species. This grand specimen is a credit to its cultivator.—H. A. FARMER.

CATASETUM TRULLA.—Another rare plant that I saw at Messrs. Armstrong & Brown's place was Catasetum Trulla, which bore two spikes carrying 3 and 5 flowers respectively. The most striking point about this fascinating plant is its colour, which, seen at a distance, conveys the impression of something unnatural, a blackness, so to speak, that is felt. Closer examination reveals that the colour is as near black as to make no difference, except when a gleam of sunshine falls across it, when one discerns a deep brownish lustre cast over the bloom. The broad flat lip is of a greenish-yellow, with a darker tinge round the edge. Altogether a weird captivating Orchid with an irresistible glamour over it.—H. A. FARMER.

CYPRIPEDIUM HIRSUTISSIMUM.—Although this fine species was introduced to England about the year 1857, it was not until 1868—69 that its native locality was known, for it was then that John Day received a few plants from his nephew Capt. Williamson, who had gathered them on the Assam side of the Khasia Hills. The specific name, meaning

"very hairy," refers to the shaggy nature of the infloresence. Formerly this Cypripedium was well represented in collections, but of late years its place has been taken by plants of hybrid origin which, although producing somewhat larger flowers, lack the historic interest that is always associated with long established species. It is, however, pleasing to note that a typical example has recently been flowering well in the garden of Mrs. E. W. Jessie Johnson, Nevill Park, Tunbridge Wells.

COCHLIODA NŒZLIANA × ODONTOGLOSSUM CITROSMUM.—The late M. Jules Hye de Crom, of Ghent, was a keen raiser of Orchid hybrids, and among the experiments he made was the crossing of Cochlioda Nœzliana with Odontoglossum citrosmum. Although about 300 little seedlings were obtained by his grower, M. Coene, their cultivation was always a matter of great difficulty, and one by one they perished, the last living for a period of nine years, but never strong enough to produce a flower spike.

ONCIDIUM MARSHALLIANUM.—Anyone who can master the cultivation of this beautiful species will earn the thanks of all amateurs, for despite various methods no successful treatment has as yet been devised that will keep the plants in vigorous condition for several successive years. Imported plants flower well the first season or two, but gradually decline in health. Cool-house treatment appears to yield results better than when warmer treatment is given. Could not one of our successful seed-raisers produce a batch of plants from seed ripened and germinated in this country? Perhaps then the plants will respond to our climate with greater vitality.

ODONTOGLOSSUMS FROM THE ROSEFIELD COLLECTION.—Although the well-known collection of de Barri Crawshay, Esq., Rosefield, Sevenoaks, was disposed of by auction in 1919, a few special plants were reserved by him and sent on to Messrs. Armstrong & Brown for preservation. We have recently received flowers from some of them. The first is historic, for it represents the first artificially raised O. crispum in England, the earliest flower being seen on August 13th, 1900. Another is O. Dircimium, the result of crossing Dirce rosefieldiense with eximium Warnham Court var.; it has reddish-purple blotching surrounded by a pleasing violet tinge, and a narrow white border to the segments. The first seedling of this parentage flowered in the collection of C. J. Lucas, Esq., Warnham Court, Sussex, in 1918. Another of Mr. Crawshay's hybrids is Odontioda Mars (Odm. Lawrenceanum × Oda. Charlesworthii), of thick texture, and a deep red colour on all the segments, except the lip, where it is broken up into a large blotch across the middle, and freckling at the apex.

ROYAL HORTICULTURAL SOCIETY.

April 24th, 1923.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), C. J. Lucas, W. H. White, S. W. Flory, H. G. Alexander, Richd. G. Thwaites, H. H. Smith, Fred. K. Sander, H. T. Pitt, E. R. Ashton, Gurney Wilson, J. Wilson Potter, Fred. J. Hanbury, Chas. H. Curtis, A. Dye, the Hon. Henry D. McLaren and Sir Frederick Moore.

AWARDS OF MERIT.

Odontoglossum Fabia var. Biddy (eximium × Aglaon), from C. J. Lucas, Esq., Warnham Court, Horsham. An excellent result, in which the robust plant carried a spike of eight large flowers, the sepals and petals particularly well developed, white, effectively marked with reddish-purple.

Brassocattleya Apollo var. Majestica (Bc. Digbyano-Mossiæ × C. Mendelii), from Messrs. Cowan & Co. An immense flower of very pleasing qualities, in colour blush-rose, the wide prettily fringed labellum having the disc yellow and the front area purplish.

CULTURAL COMMENDATION.

To Mr. James Penton, gardener to General Sir Arthur Paget, Warren House, Coombe Wood, Kingston Hill, for a noble plant of Cyrtopodium punctatum, over four feet in height, and with a tall spike carrying numerous bright yellow flowers, spotted with red on the lip.

GROUPS.

H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood), was awarded a Silver Flora Medal for an attractive exhibit containing several finely cultivated examples of Miltonia hybrids, among them being M. Venus var. Dulcis, M. Lyoth, M. vexillaria, and the scarce M. Roezlii. In the centre was a fine specimen of Nanodes Medusæ, and in front Lycaste Lawrenceana and Epidendrum Endresii. Another interesting plant was Odontoglossum crispum Oakfield Sunrise, with streaks of colour on the petals, and richly blotched Odonts. were seen in Aireworth and Aglaon. Cirrhopetalums included Collettii, and Bulbophyllums were represented by the curious tremulum.

Messrs. Sanders received a Silver Banksian Medal for a group containing Miltonia Hyeana var. Wedding Bells, with dark blotching on the labellum, M. Butterfly var. Radiant, a very pleasing hybrid, M. Bleuana var. Brownie, also good, and M. Westminster (Baron Schröder × vexillaria G. D. Owen), with a crimson mask on the lip. The rare Dendrobium arachnites and Odontoglossum cirrhosum Pitt's var., were also in excellent condition. A fine centre piece was Brassocattleya Crofutiana var. Colossa, being a grand flower, and near it Cattleya Tityus var. Splendid. An interesting hybrid

was Brassocattleya St. André (B. nodosa × C. Dowiana aurea), with pale yellow flowers, the wide lip veined with rose.

Messrs. Stuart Low & Co: were awarded a Silver Banksian Medal for a group in which the elegant Oncidium McBeanum and a fine variety of Brassocattleya Apollo occupied central positions. Brightly coloured hybrids were seen in Læliocattleya luminosa aurea, Lc. G. S. Ball, and Bc. Everest. Dendrobium aggregatum majus carried a number of golden-yellow flowers, and D. Royal Sovereign was the result of crossing Curtisii with Regium. The fine Cattleya Lueddemanniana Stanleyi and C. Lawrenceana were two rarely seen species, while an interesting hybrid was C. Dusseldorfei Aquinii, in which the petals had the tips flushed with purple.

Lady Aberconway and the Hon. Henry McLaren, Bodnant, N. Wales (gr. Mr. F. C. Puddle), exhibited Cypripedium Psyche, Bodnant variety (bellatulum × niveum), porcelain-white, thickly spotted with purple, and very pretty.

Dr. Miguel Lacroze, Bryndir, Roehampton (gr. Mr. Taylor), staged Brassocattleya Cliftonii var. Bryndir, of model shape, rose tinted, the fringed lip purplish, and Slc. Meuse var. Bryndir, with four rose-red flowers and a crimson lip.

Messrs. Flory & Black exhibited Cattleya G. P. Walker, a fine result with rose-purple coloured flowers, and Cattleya Miguelito, a handsome hybrid obtained by crossing Dowiana with Octave Doin, the flower being bright rosy-mauve, with the lip ruby-crimson.

May 8th, 1923.

Members of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), C. J. Lucas, H. H. Smith, R. G. Thwaites, Stuart Low, Gurney Wilson, R. Brooman White, E. R. Ashton, Fred. J. Hanbury, H. G. Alexander, A. Dye, H. T. Pitt, A. McBean, W. J. Kaye, and the Hon. Henry D. McLaren.

FIRST-CLASS CERTIFICATES.

Odontioda Naomi (Oda. Vuylstekeæ × Odm. Nathaniel), from R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. W. Sorrell). The tall and erect spike carried 14 flowers of excellent formation, of a peculiar bronze tint of terra-cotta, the roundly-formed labellum having a bright yellow crest. This beautiful hybrid was considered to be of outstanding merit on account of its very distinctive coloration.

AWARDS OF MERIT.

Odontoglossum Tagus, Gerrish's var. (Othello × Doris), from R. Gerrish, Esq. In this attractive result the good points of both parents are happily blended. The spike carried 11 large flowers of deep rose-purple

ground colour, all the segments being heavily blotched with claret-purple, the broad lip white at the apex, and with violet markings.

Odontoglossum Gorizia var. Imperial Purple (Jasper × President Poincare), from J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne). The six large flowers carried by this plant had all the segments unusually broad and well displayed, the margins being prettily toothed. In colour rich mauve-purple, the large labellum of lighter tint.

OTHER EXHIBITS.

Messrs. Stuart Low & Co. were awarded a Silver Banksian Medal for a group containing the blue tinted *Zygopetalum crinitum*, the pretty Cirrhopetalum Collettii, a fine example of Vanda suavis, and several attractive Epidendrums of the radicans section. Among the Læliocattleyas were good varieties of Dominiana, the new Dolimite, of excellent colour, Fascinator, always useful in the spring time, and G. S. Ball, with orange-yellow coloured blooms. Miltonia vexillaria var. Lyoth had a rich maroon-purple disc on the lip, while several well-flowered specimens of Dendrobium thyrsiflorum received favourable comment.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), exhibited the new Odontoglossum Imperial (Colossus × gandavense), having large flowers blotched with claret-red.

R. Gerrish, Esq., Milford Manor, Salisbury, staged Odontoglossum St. Elmo (Admiral Sturdee × Empress of India), of fine shape and with reddish-purple blotching.

Messrs. Flory and Black exhibited Cattleya Irene, with pure white flowers of large size, the throat having orange-yellow markings. Also the new Cattleya T. Sohma (Empress Frederick × Mossiæ), in which the broad segments were of a pleasing bright mauve colour, the lip purplish at the margin; and Cattleya Duchess of York (Empress Frederick × Rhoda), a promising novelty, the two flowers being of soft rose-pink colour, the roundly formed labellum banded with purple and having a golden-yellow disc and throat.

Messrs. Cowan & Co. staged Cattleya Tityus var. Duchess of York, a grand form of bright colour and with the labellum unusually well developed.

PLATYCLINIS FILIFORMIS.—Commonly known as the Golden Chain Orchid, this beautiful little species requires rather careful cultivation to obtain satisfactory results. A shallow pan suspended in the warmest house with plenty of atmospheric moisture is desirable. The roots are delicate, and on that account a compost of fine and soft fibre with sphagnum moss is required.

MANCHESTER ORCHID SOCIETY.

(*Continued from page* 160.)

Cymbidium Alexanderi, Compton Hall var., very distinct, flowers large and well shaped, white with rosy-purple lines round edge of lip; from Jas. Whitham, Esq.

Dendrobium nobile, Keeling's variety, one of the best, flower of perfect shape, segments heavily tipped with magenta, lip with dark disc; from Messrs. A. J. Keeling & Sons.

AWARDS OF MERIT.

Cypripedium Cappamagna var. Paschalia, Cyp. Caractacus var. Parasceve, Cymbidium Seamew; from Rev. J. Crombleholme.

Odontoglossum Rosina, West Point var., O. crispum var. Duchess of Athlone, Lycaste Skinneri var. Zeus; from S. Gratrix, Esq.

Odontoglossum St. Nicholas violacea; from Mrs. Gratrix.

AWARDS OF APPRECIATION.

Odontioda Laura; from Mrs. Gratrix.

Odontoglossum helemense var. Primrose Dame; from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Brassocattleya Joan, Westonbirt var.; Mr. C. Branch, for Brassocattleya Pallas var. Surprise; and Mr. F. W. Thompson, for Bc. Cowanii.

GROUPS.

A Gold Medal was awarded to S. Gratrix, Esq., for a fine exhibit of Cattleyas, Odontoglossums, and Odontiodas. A Large Silver-gilt Medal was awarded to F. Hardy, Esq., for a group of Dendrobiums in great variety. Silver Medals were won by the Rev. J. Crombleholme and Jas. Whitham, Esq.

Col. Sir J. Rutherford, Bart., staged Brassocattleya Cliftonii magnifica and Odontoglossum Yellow Prince. Capt. W. Horridge staged a collection of cut-flowers, to which Silver Medal points were granted.

Messrs. Cypher & Sons were awarded a Silver Medal for a group of Dendrobiums and rare species. Messrs. A. J. Keeling & Sons exhibited various Dendrobiums. Mr. D. McLeod staged blotched Odontoglossums and Mr. J. Birchenall exhibited Cattleya Trianæ delicata.

April 19*th*, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, A. Coningsby, D. A. Cowan, A. T. Cussons, J. Cypher, J. Evans, W. M. Jackson, A. Keeling, E. W. Thompson, J. Whitham, and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Dendrobium Florence var. Wilps, a distinct hybrid, flowers white with rich purple disc on the lip; Odm. promerens var. albens, flowers exceptionally large, white with a few spots on the broad lip; from P. Smith, Esq.

Odontioda Earl of Chester (parentage unknown), large flowers of bronze red colour, the frilled margin of segments a lighter shade; from Mrs. Gratrix.

Odontioda majestic, very round flower, scarlet crimson, with white lip: from S. Gratrix, Esq.

Odontoglossum Hardyanum (parentage unknown), a large flower of the amabile section, heavily blotched reddish brown and with a broad white margin; from F. Hardy, Esq.

Brassocattleya Apollo var. Duke of York, an exceptionally large flower, fine shape, rosy mauve in colour; from Mr. J. Evans.

AWARD OF MERIT.

Odontoglossum crispum Princess Yolanda; from Messrs. Gratrix.

AWARD OF APPRECIATION.

Odontoglossum triumphans var. Lionel Crawshay; from Messrs. A. J. Keeling & Sons.

GROUPS.

A Silver Medal was awarded to Jas. Whitham, Esq., for an excellent exhibit of Cypripediums and Cymbidiums. Messrs. J. Cypher & Sons received a Large Silver Medal for a varied collection of species and hybrids. Capt. W. Horridge was awarded Silver Medal points for a collection of cut-flowers.

THE ESLAFORDE COLLECTION.—Messrs. A. J. Keeling & Sons have a number of choice and interesting plants remaining unsold from the above collection. Prices have been greatly reduced to effect a quick clearance.

MASDEVALLIA TOVARENSIS.—This is one of the most popular of all Masdevallias, and deservedly so, considering that the snow-white flowers are produced during the dull months of the English winter. It was discovered about the year 1849 by Wagener, at a place called Tovar, situated at a considerable elevation on the coast range of Venezuela in the province of Caracas. It continued to be a rare plant until 1880, when a large consignment was received by Messrs. Low & Co. The cool-house will afford the correct atmosphere for its cultivation. Shallow pots, or pans, with a mixture of fibre and moss are suitable, selecting a shady place on the staging, and where plenty of atmospheric moisture is present throughout the year.

THE ORCHID REVIEW.

VOL. XXXI.] JULY, 1923. [No. 361.

NOTES.

ODONTOGLOSSUM CRISPUM SOLUM.—In our January issue (p. 2) reference was made to the use of this distinct variety as a parent, and to the fact that of the dozen seedlings that had been flowered in the Gatton Park collection not a single example gave evidence of the remarkable colour of its lip. We have, however, lately received from Sir Jeremiah Colman a flower that possesses some of the characters of O. crispum solum. It is the result of crossing O. ardentissimum var. J. Gurney Fowler (crispum solum × Pescatorei) with O. crispum, and although the irregular spotting on the sepals of this seedling may or may not be derived from crispum solum, there is, on the other hand, evidence of a more certain character in the crest area of the labellum, for this is well coloured with claret-purple. The remarkable O. ardentissimum var. J. Gurney Fowler received a First-class Certificate at the Chelsea Show of 1916.

CYMBIDIUM INSIGNE VAR. BIERI.—A flower of this exceedingly fine variety comes from Mr. F. C. Puddle, Orchid grower to the Hon. Henry D. MacLaren, Bodnant, Tal-y-Cafn, North Wales. By many experts it was regarded as The Orchid of the Ghent Quinquennial Exhibition, where it was shown by Messrs. Bier and Ankersmit. The remarkable size of the individual flowers allows it to be classed with other giant forms of well-known species, such, for instance, as the well-known Harefield Hall variety of Cypripedium insigne. When one takes into consideration the many thousands of either of the above species that have been imported and flowered under cultivation before a comparatively giant-like variety is discovered, the finding of such a prize is indeed worthy of being placed on record, while the plant itself deserves all care, and propagation when favourable opportunities permit.

ODONTOGLOSSUM CITROSMUM.—There is certainly a revival with regard to the interest taken in attractive species, many of those at one time plentifully seen in gardens have long since become rarities, so much so that to the

newer amateurs their names are sometimes unknown. Fortunately there are still a few nice plants about of Odontoglossum citrosmum, but the example exhibited by Sir Jeremiah Colman at the R.H.S. meeting on June 12th was so well above the average in point of coloration that it came very near receiving an award. O. citrosmum is a native of Mexico, where it has been collected on many occasions, notably by M. Rœzl, who stated in *La Belgique horticole*, 1883, p. 229: "Great was my surprise to see the trees clothed with a profusion of Orchids, which proved to be Odontoglossum citrosmum, whose pendulous spikes, a yard long, were adorned with innumerable white and lilac flowers, which perfumed the air with their delightful fragrance. The stoutest branches of the oaks were literally loaded, and it was a pleasure to see the profusion of flowers produced by these plants, a single spike bearing upwards of thirty expanded flowers. During several days' march we noticed that all the oak trees were clothed in this way by the same Orchid, which flowers the more freely it is exposed to the direct rays of the sun."

ORCHIDS OF CENTRAL AMERICA.

UNDER the title of Additions to the Orchid Flora of Central America, with observations on noteworthy species, Prof. Oakes Ames has issued No. 4 of his *Schedulæ Orchidianæ*. It comprises one new genus and forty new species. They represent, for the most part, Costa Rican Orchids sent for identification by Captain Arthur W. Hill, Director of the Royal Gardens, Kew, and by Mr. C. H. Lankester. Several species from Panama, which appear to be new, are included, these having been detected in recent collections made by Mr. C. W. Powell near Panama City. There are also included several species which demand attention because they have remained obscure since the date of publication or have been misunderstood in recent work on the Orchids of Central America.

Lankesterella is the new genus. It is a member of the Spiranthinæ, distinguished in part from its allies by the free petals, and transversely complanate curved column which is produced into a foot. There is no rostellar projection as in Spiranthes and its allies. In habit it is said to resemble those species of Stenorrhynchus which Dr. Schlechter transferred to Cladobium. L. costaricensis is the species described.

With regard to Epidendrum equitans, Mr. Oakes Ames says there are two species which have passed under this name. The older one was described by Ruiz and Pavon from Peruvian material. For the Central American species, now known to range from Mexico to Panama, the new name E. equitantifolium is proposed. Epidendrum gravidum, E. trachycarpum and E. Lankesteri are the subjects of two excellent full-page plates which add greatly to the value of this publication.

AN ABNORMAL DENDROBIUM SUPERBUM.

By THOS. CARY WELCH, Manila, Philippine Islands.

THE accompanying photograph of Dendrobium superbum shows a peculiar freak. Dr. E. D. Merrill, Director of Science, tells me that it is the only one he has ever seen. Note that the flower is from the axil of the growing leaf; although the photograph does not show it, there is practically no pedicel. Furthermore, when the bloom first expanded the lip was vertically above the dorsal sepal. The photograph was taken when

DENDROBIUM SUPERBUM, SHOWING ABNORMAL FLOWERING. PHOTOGRAPH BY THE PHILIPPINE BUREAU OF SCIENCE, MANILA.

the flower was three days old and had turned a right angle, apparently in an effort to assume the normal position.

Dendrobium superbum is very common here at this season of the year (March). The flowers are borne on pedicels from the bare leaf stems of the preceding year; this particular flower is, therefore, one year too early. I am inclined to think that this premature flower has been forced by my practice of spraying the plants once every two or three days, just after they have had their regular watering, with a much diluted mixture of liquid manure and water, upon which they thrive wonderfully. Of course, all our Orchids are here grown out of doors and on slabs of wood.

The plants are stripped from the trees by natives in the country just before they are about to bloom. The roots are enclosed in cocoanut husk, and they are brought to Manila and hawked from house to house, either in bloom or just before blooming. The pedlar will ask an American a peso or a peso-and-a-half (two or three shillings) for one huskful, which may contain from two to five separate plants. I have a houseboy who has a strong admixture of Chinese blood and who deals with these pedlars for me; he purchases this variety at fifteen centavos, or less than fourpence a set.

* * * *

[In the bud state the flowers of Orchids are so arranged that the lip is on the upper portion, but as further development takes place the flower gradually turns a half-circle, so that the lip eventually comes to the lower part. This causes a torsion or twisting of the ovary or pedicel. In the interesting example above, described by Mr. T. C. Welch, the absence of any pedicel apparently prevented the flower from completing its usual change of position, an intermediate point being the result. Some notes on the twisting of the ovary were included in the *Orchid Review*, vol. xxx. p. 38, and on page 3 of the same volume an article by Colonel M. J. Godfery: "Is the twisting of the ovary in Orchids a satisfactory character for systematic differentiation?" A photograph of Dendrobium superbum in its usual state of flowering, after the leaves have fallen, will be found in vol. xxix., p. 115.—G.W.]

ONCIDIUM ALTISSIMUM.—Any amateur who has grown or knows this Oncidium will probably consider the following description of it by Lindley as somewhat more than the plant deserves, but it may have caused a great impression on horticulturists when it was published in 1836. "One of the most gigantic of Epiphytes. The specimen from which our drawing (*Bot. Reg.* 1651) was made received a medal from the Horticultural Society, and had a flowering stem from six to seven feet high; it was grown in the nursery of the late Mr. Colvill. It is described by Richard as frequently attaining the height of nine feet in its native woods in Guiana, and we have actually had a specimen from Mr. Harrison of Liverpool, the flower stem of which exceeded ten feet in length. The blossoms are beautifully marked with green, yellow, and scarlet, but are not of large size. Many of the Orchideous epiphytes are found to succeed best if tied to short pieces of the branches of trees with rugged bark; none succeed better upon that plan than the different species of Oncidium; and provided so large a plant as this, with its long heavy leaves, can be made fast to a branch, we have no doubt it will also be found to like that kind of treatment. The specimen, however, from which our drawing was taken had been grown in a pot in decayed vegetable mould."

THE CHELSEA FLOWER SHOW.

ALTHOUGH it rained in torrents on the opening day the immense tents were crowded with visitors, so great is the enthusiasm for horticulture and the attractions of any special section in which members of the public are interested. On the second and third days of the Show the attendance was even greater, and considerable difficulty was frequently experienced by amateurs who desired to examine more closely any particular plant. The early morning was certainly the best time for inspecting the exhibits with freedom and pleasure, and we advise amateurs to take advantage of this period on future occasions. Although there is never any formal opening the King and Queen made an extensive tour round all the exhibits, the splendid array of Orchids causing them to spend much time in the section specially reserved for these plants.

Taking into consideration the whole of the various exhibits, the general excellence was quite up to the usual high standard, while the Orchids alone surpassed all expectations. The fact that the Sherwood Challenge Cup for the most meritorious group and the Cain Challenge Cup for the best exhibit by an amateur were both awarded to groups of Orchids is indeed an event that all lovers of these beautiful flowers may well be proud of, for it fully proves that Orchids have a superiority all their own and that their cultivation is successfully accomplished by both amateur and trade growers.

The great deficiency of sunshine during the spring time made it a difficult matter for cultivators to include many Cattleyas in their groups, and those that were staged showed, on the whole, a lessened amount of vigour. But an exception occurred in Cattleya Prince Shimadzu var. Olympus, which not only received a First-class Certificate, but was generally considered by experts to be the finest Orchid in this year's Chelsea Show. Perfect in formation and coloration, it came in for wide-spread appreciation and one can imagine what a wonderful flower will be produced under the more suitable conditions of abundant sunshine. Cattleya Irene var. Our Queen, with a large pure-white flower, was certainly well above the usual type of albino Cattleyas.

Of late years Cymbidiums have come very much to the front. They enjoy a popularity largely gained by their decorative habit and easy cultivation. These qualities have been produced mainly through C. insigne, and of the many fine varieties staged by the various exhibitors the best was certainly C. Castor var. Laburnum in the group of Pantia Ralli, Esq. The tall arching spike of large yellowish flowers was frequently picked out for special praise by experts as well as by the uninitiated. At the recent Ghent Quinquennial Exhibition, the Cymbidiums were much

more numerous, doubtless owing to the more seasonable period of the year, but we do not remember seeing there a finer hybrid than that above-mentioned.

Although it is many years since the Royal Horticultural Society's Spring Show was held in the Temple Gardens, there are not a few Orchidists who recall those events with a certain amount of interest, for very great advances have been made since that period. One of the memorable features of the Temple Show was the inclusion in Sir Fred. Wigan's group of Miltonia vexillaria G. D. Owen, then the only variety of this species having a blotched lip. At the disposal of his collection in 1907 the three portions of this plant realised about £1,500. A glance round the Chelsea Show of this year was sufficient to convince anyone of the extensive use that has been made of this famous variety. In practically every group there were several hybrids and varieties of out-standing merit. Not only were some of these hybrids of Miltonia vexillaria of large size and delicately veined with rose, but the handsome blotch on the base of the lip rendered them particularly attractive. In some varieties this blotch had a decisive clean-cut margin, while in others it took a radiating form. In colour it ranged from purple to almost a deep black, while in one or two examples an elegant effect was produced by a purplish blotch being surrounded with a zone of crimson.

To many visitors it was a matter of regret that no Orchids were shown from the Westonbirt Collection. The wonderful group of Sir George Holford's fine specimens at the International Exhibition of 1912 will long be remembered, if only for the superb examples of Dendrobiums of the nobile section which it contained. No such plants of their kind have since been seen. But in Sir Jeremiah Colman's exhibit this year there were several Dendrobiums of the taller growing section, notably hybrids of D. Dalhousieanum. As a truly grand plant of majestic flowering habit there is probably no finer example than the D. Gatton Sunray, to which a First-class Certificate was deservedly awarded. It combines the robust nature of D. Dalhousieanum with the rich golden-yellow colour of D. chrysotoxum.

With regard to the ever-popular Odontoglossum crispum there were numerous varieties. The unblotched forms come in for just as much appreciation as the highly coloured ones. An Award of Merit was granted to a handsome plant bearing two spikes each with nine unblotched flowers, although the opinion of the exhibitor was that this particular plant deserved Cultural Commendation only. It would therefore be as well if some notification to this effect could in future be added on the official entry forms. Of the albino varieties with their pure-white flowers, and also the xanthotic forms, there was a beautiful group, the many flowered spikes when seen from a distance looking like a snow-capped hill. Further

advance in richness of coloration is now rather slow, and there is no further evidence that a blue coloured Odontoglossum will be obtained. On the other hand, there were one or two excellent varieties noteworthy on account of the large size and round formation of their flowers. But if members of the general public are watched it will be noticed that they frequently pick out for praise some of the more starry shaped flowers of delicate rose tints, and if they do so for decorative reasons we fully agree with their choice.

Odontiodas are still very popular, and a distinct advance always gains the approval of the Committee. This year two First-class Certificates were granted, one to Odontioda Duchess of York, in which the spike carried twenty flowers of a bright scarlet colour tinged with orange and evenly suffused throughout all the segments, and the other to Odontioda Radiant var. Majestic, a large flower of deep rose colour, and having the segments prettily blotched with reddish scarlet. In all large groups a bold design is necessary, and this was effected in some cases by massing several plants of similar kind, or else by contrast, as was done with a large plant of Cattleya Mossiæ bearing twenty white flowers that was surrounded by numerous plants of Odontioda Chanticler with many-flowered spikes of rich crimson-scarlet.

Each year witnesses a long series of new hybrids, many of them but new combinations of the same species, yet all of interest to those who make a practice of regularly recording them. To those who watch for improvements in certain definite directions, progress apparently comes rather slowly, for after the primary crosses and first few subsequent matings have flowered there is less opportunity for the individual characters to arrange themselves in any new design of distinction. But with all the new hybrids, some of which unquestionably are great improvements on those of earlier date, there are a few that not only have a historic interest all their own on account of their early origin, but possess particular merits that render them always worthy of appreciation. No better example exists than Lælio-cattleya Dominiana, a hybrid raised in 1878 by Dominy, the pioneer of Orchid hybridisation, yet still widely cultivated on account of its richly coloured lip. Another reminder of the early days, for it first appeared in 1881, is Selenipedium grande, of which there were several finely cultivated examples. The long-tailed petals of this hybrid hung down in ribbon-like style from plants arranged on pedestals, causing them to be frequent objects of wonder to the numerous visitors.

MASDEVALLIA VELIFERA.—This species was sent from Colombia by Patin to B. S. Williams in 1874. It has large malodorous flowers, of ochreous-yellow colour, minutely dotted with red-brown. Exhibited by Messrs. Sanders at the Royal Horticultural Show, June 12th, 1923.

ODONTOGLOSSUM CRISPO-SOLON VAR. CARMANIA.

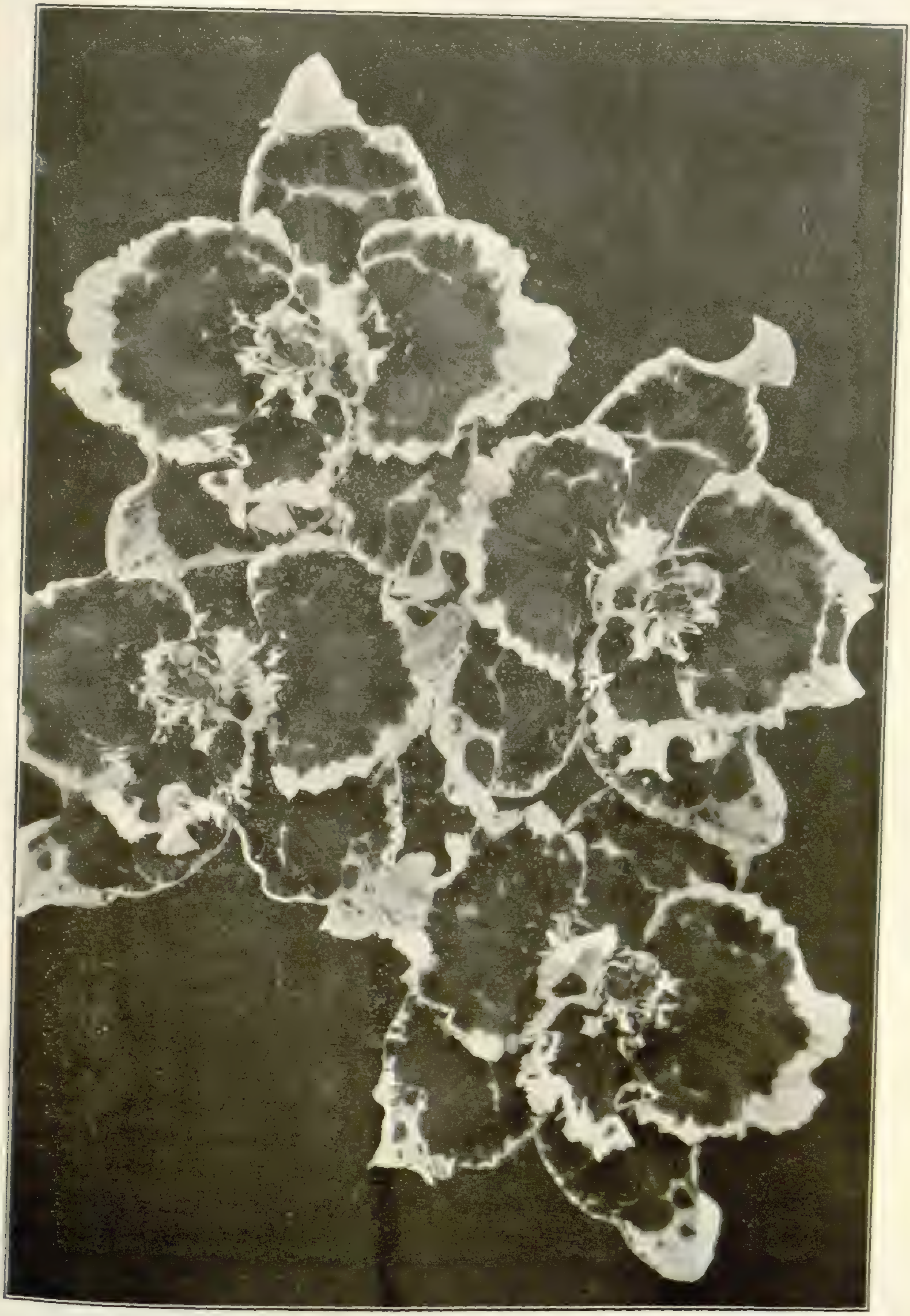
THE Odontoglossum genus has of late years been so much extended by the raising of numerous hybrids that there is now never a month without some plants being in flower. But, as every amateur knows, it is the spring of the year when Odontoglossums are seen at their best, and this is why the Chelsea Show affords such an excellent opportunity for viewing these plants in their fullest state of excellence. No matter which way the visitor cared to turn in the section devoted to Orchids he found in all the groups a most varied collection of species and hybrids, the last-mentioned considerably outnumbering the former.

Blotched Odontoglossums have for many years been popular plants, and even at the present time there are many amateurs who make a point of searching out and criticising the special varieties staged at Chelsea. Taking into consideration the fact that the Orchid Committee awarded but one First-class Certificate to an Odontoglossum, and that to O. crispo-Solon var. Carmania, it may be truly said that this was the finest of its kind in the show. It was exhibited by Messrs. J. & A. McBean in their Gold Medal group. Our reproduced photograph shows the spike of four flowers, somewhat reduced in size, but depicting all the fine qualities as regards the formation of the segments and their deep reddish-purple blotching on a rose-tinted ground.

O. crispo-Solon is the result of crossing crispum with Solon, the latter being a hybrid between Adrianæ (crispum × Hunnewellianum) and ardentissimum (crispum × Pescatorei). A minute examination of the flowers showed that all these three species were more or less represented.

ERIA PANNEA.—Mr. H. N. Ridley states that this species is called in Malacca "Poko Kura Kubong," and the leaves and roots are boiled and the decoction used for bathing by the aborigines (Jakuns) in cases of shivering fever. It is a common little plant, creeping on branches of trees often very high up.

A TUTANKHAMEN ORCHID.—With the multitude of varieties, both of species and hybrids, that have from time to time appeared, it is no light task for the owner of a new form to select a suitable varietal name that is not already in use in any particular section of a genus. At the recent Ghent Exhibition a pleasant surprise awaited the visitors in Odontoglossum Vulcan var. Tutankhamen, staged by Count Joseph de Hemptinne. Not only was it a noteworthy plant on account of the large flowers with their finely-formed segments, but each of the three sepals bore a comparatively immense colour blotch of pyramid-like form that suggested the Egyptian varietal name.



ODONTOGLOSSUM CRISPO-SOLON VAR. CARMANIA.

CERTIFICATED ORCHIDS AT CHELSEA SHOW.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), F. J. Hanbury, T. Armstrong, H. G. Alexander, W. H. Hatcher, E. R. Ashton, A. Dye, Gurney Wilson, J. T. Barker, H. H. Smith, W. H. White, J. Cypher, J. Shill, F. K. Sander, S. Flory, A. McBean, C. J. Lucas, Pantia Ralli, Stuart Low, R. G. Thwaites, H. T. Pitt, C. H. Curtis, G. F. Moore and R. Brooman White.

FIRST-CLASS CERTIFICATES.

Cymbidium Castor var. Laburnum (insigne × Woodhamsianum), from Pantia Ralli, Esq., Ashstead Park, Surrey. A most showy hybrid of excellent formation in all the segments; of yellow colour, the labellum marked with a reddish zone at the apex. This plant carried a tall arching spike of 16 flowers.

Dendrobium Gatton Sunray (Dalhousieanum luteum × illustre), from Sir Jeremiah Colman, Bart., Gatton Park, Surrey. This elegant plant bore several pendulous spikes with a total of 48 large flowers of fleshy nature; in colour a deep straw yellow, the basal part of the labellum blotched with reddish-brown. D. illustre is itself a hybrid between Dalhousieanum and chrysotoxum, and D. Gatton Sunray possesses a habit of growth fairly intermediate in style.

Cattleya Prince Shimadzu var. Olympus (Tityus × Hardyana), from Messrs. Flory and Black. One of the grandest hybrid Cattleyas raised and generally considered to be the best Orchid exhibited this year at Chelsea. All the good qualities of both parents are pleasingly combined, producing a large flower having broad segments with the petals arranged in fine up-standing habit, in fact, they just met one another in front of the dorsal sepal. In colour a bright rosy-mauve, slightly tinged with pink, the expansive labellum crimson-purple with the disc and throat golden-yellow.

Cypripedium Fletcherianum var. Antinea (Godefroyæ leucochilum × W. R. Lee), from Messrs. Cowan & Co. One of the most distinct hybrids yet raised in this genus. Flower of large size, ground colour pale yellow, the dorsal sepal and lateral petals neatly marked with lines of reddish dots, the labellum slightly marked.

Odontoglossum crispo-Solon var. Carmania, from Messrs. J. & A. McBean. One of the largest and best of the Odontoglossum hybrids, the spike carried four flowers, with broad sepals, extra round petals and a large lip. All the segments heavily blotched with rich crimson-purple, the margin showing soft rose tinting.

Odontioda Duchess of York, from Messrs. Charlesworth & Co. A delightful hybrid, the well-developed spike carried no less than 20 flowers

of a bright scarlet colour, tinged with orange and evenly suffused throughout all the segments. Parentage unrecorded.

Cattleya Irene var. Our Queen, from Messrs. Flory & Black. A truly grand albino flower derived from Mossiæ Wageneri and Suzanne Hye. All the segments of broad dimensions, thick in texture and creating a beautiful effect.

Odontiodo Radiant var. Majestic (Chanticler × Royal Gem), from Messrs. J. & A. McBean. A hybrid of excellent constitution, the large bulb carried a tall spike of 12 large fleshy flowers and buds. The ground colour deep rose, and all the segments prettily blotched with reddish scarlet.

Brassolæliocattleya Truffautiana var. Triumph, from Messrs. Stuart Low & Co. A beautiful hybrid between Lc. luminosa and Bc. Mrs. J. Leeman, the large flower of yellowish-buff colour, the expansive labellum prettily fringed at the margin, and having the central area tinged with pale rose-magenta.

AWARDS OF MERIT.

Miltonia Constance (vexillaria Lyoth × Isabel Sander) from Messrs. Charlesworth & Co. An attractive variety in which the spike carried several large flowers of a delicate blush tint, the lip having a rayed blotch of reddish-purple colour at its base.

Odontoglossum Gatton Emperor var. Nero, from Sir Jeremiah Colman, Bart. A fine variety of this attractive hybrid, the erect spike bore nine flowers of excellent shape, of deep claret-purple colour except for a narrow rose-tinted margin.

Odontoglossum crispum var. Esmeralda, from Messrs. J. & A. McBean. A beautiful specimen and variety. The two spikes each bore nine unblotched flowers of thick substance and splendid formation.

Odontoglossum Serapis var. Dusky Monarch, from Messrs. Cowan & Co. The erect spike of this handsome hybrid carried six flowers of reddish-chocolate colour, all the segments having a narrow white margin that added much to its attraction.

Odontioda Murillo (Oda. Chanticler × Odm. Aglaon), from Messrs. Cowan & Co. A pretty result obtained from two richly-coloured parents. The plant bore a spike of nine medium-sized flowers of reddish-scarlet colour, the labellum having a large bright red blotch and with a yellow crest.

Odontoglossum Llewellyn var. Colossum (amabile × Georgius Rex) from Messrs. Charlesworth & Co. This plant carried a spike of six immense flowers, heavily blotched and spotted with lilac-purple on a rose-tinted ground.

Odontonia Olivia (M. Bleuana × O. triumphans Crawshayanum), from Messrs. Charlesworth & Co. This interesting novelty carried a spike of five large flowers, the sepals and petals somewhat narrow, but with the

much broader labellum of golden-yellow colour blotched with chestnut-red.

Odontioda Brilliant, from Pantia Ralli, Esq. A charming result in which the erect spike bore six neatly formed flowers, blotched with rich scarlet on a rose-tinted ground and having a bright yellow crest on the base of the lip.

Cattleya G. P. Walker var. superba (Tityus × Mendelii), from Messrs. Flory & Black. The two flowers carried by this plant were of excellent formation, the petals being strongly developed. Of a rosy-mauve colour, the broad lip ruby-crimson, with dark yellow veining in the throat.

Miltonia Butterfly var. Empress, from Messrs. Sanders. This attractive hybrid bore two spikes, each with seven large flowers, white, the petals flushed with rose at their base, the lip bearing a radiating blotch of dark crimson.

Miltonia Sanderæ var. Unique, from Messrs. Sanders. Another of the beautiful Miltonias exhibited by this firm. It carried eight large flowers, veined and suffused with rose, and with a blackish blotch at the base of the labellum.

Brassocattleya Villa Jeanne (C. Empress Frederick × Bc. Dietrichiana), from Messrs. Stuart Low & Co. A fine result in which the handsome flower has all the good qualities of both parents, being of round formation and pleasingly coloured.

CULTURAL COMMENDATION.

To Messrs. Armstrong & Brown for a superb specimen of Dendrobium acuminatum, a native of the Philippine Islands, and bearing five many-flowered spikes of a rose-carmine colour. Probably the first example yet seen in cultivation.

To Mr. S. Farnes, Orchid grower to Pantia Ralli, Esq., for Læliocattleya Excelsior var. The Globe, with three spikes each bearing four well-developed flowers. The chief distinguishing feature of this variety is the beautiful purple flush of colour on the petals. The parents are Cattleya Mendelii and Læliocattleya Canhamiana.

ORCHIDS AT A BANQUET.—At the Annual Conference and Dinner of the Building Societies' Association, held at York on May 24th, the tables were decorated with Orchids supplied by Messrs. A. J. Keeling & Son, of Bradford. Amidst the silver and antique candlesticks the flowers showed to great advantage. Majestic spikes of Odontoglossums and large Cattleyas interspersed with Cypripediums presented a sight that was admired by all and one not easily forgotten. The duties of honorary secretary, both for the Conference and Dinner, were carried out by Mr. A. C. Lister, a keen amateur cultivator of Orchids.

BRASSOLÆLIOCATTLEYA JUPITER.

ONE of the principal objects of interest in the recent Chelsea Show was the magnificent Brassolæliocattlea Jupiter var. Mrs. Stewart exhibited by J. J. Bolton, Esq., Claygate Lodge, Claygate, Surrey (gr. Mr. S. Lyne). Owing to the winterly weather the risk of exposing this valuable plant was considered too great, so only the severed spike of two flowers was shown. On this account the Committee, by long adopted

BRASSOLÆLIOCATTLEYA JUPITER VAR. MRS STEWART.

custom in such cases, were prevented from giving more than a Vote of Thanks. If the plant had been presented a First-class Certificate would undoubtedly have been awarded.

Although the general formation of these flowers can be seen in the much reduced photograph, the total width of each was ten inches, and when the petals were slightly extended by drawing them out with the

hand, the measurement was an inch or so more. This wonderful hybrid, ranking amongst the largest in its section that have as yet been produced, is of a pleasing light blush-rose colour in the sepals and petals, and rich purple on the front area of the immense roundly formed labellum, this latter segment being embellished by a fringed margin of lighter tint. Golden lines and delicate veining extend from this purple area along the throat to the base of the column.

An analysis of the parentage shows that Blc. Jupiter is the result of crossing Blc. Veitchii with C. armainvillierensis, the former parent being Bc. Digbyano-Mossiæ × L. purpurata and the latter C. Mendelii × C. Warscewiczii (gigas). Of the five species thus combined, Brassavola Digbyana has created the roundly formed and fringed labellum, Cattleya Mossiæ the widely extended and somewhat drooping petals, C. Mendelii is seen in the decisive manner in which the colour of the labellum is confined to the lower half of this organ, C. Warscewiczii also adds much to the general wide dimensions, as well as imparting a light-yellowish area on each side of the throat just above the purple coloured portion, while Lælia purpurata can be seen in the general habit of the plant, and in the narrow reflexed upper sepal, a feature that occurs in other of its hybrids, such as Lc. Aphrodite and Lc. Fascinator.

Although it has frequently been said that the limits regarding size have already been reached, this wonderful result proves that finality in this respect is still unknown. Mr. Bolton may justly be proud of having in his collection a hybrid so well deserving of the many praiseworthy remarks passed on it.

GRAND YORKSHIRE FLOWER SHOW.

THIS important event was held at York, June 13, 14 and 15, when Orchids were again an attractive feature. Messrs. Cypher & Sons were awarded the First Prize for a table of Orchids, their best plants being Læliocattleya Wiganiana, Lc. Canhamiana Rosslyn var., and Blc. Veitchii, which was large and of fine colour. Messrs. Mansell & Hatcher received a Large Gold Medal for an excellent exhibit containing Miltonioda Cooperi, with pretty rose-carmine flowers, Miltonia Venus, Odontoglossum Hodgsonii, as well as Lc. Mauretania and a fine series of hybrids.

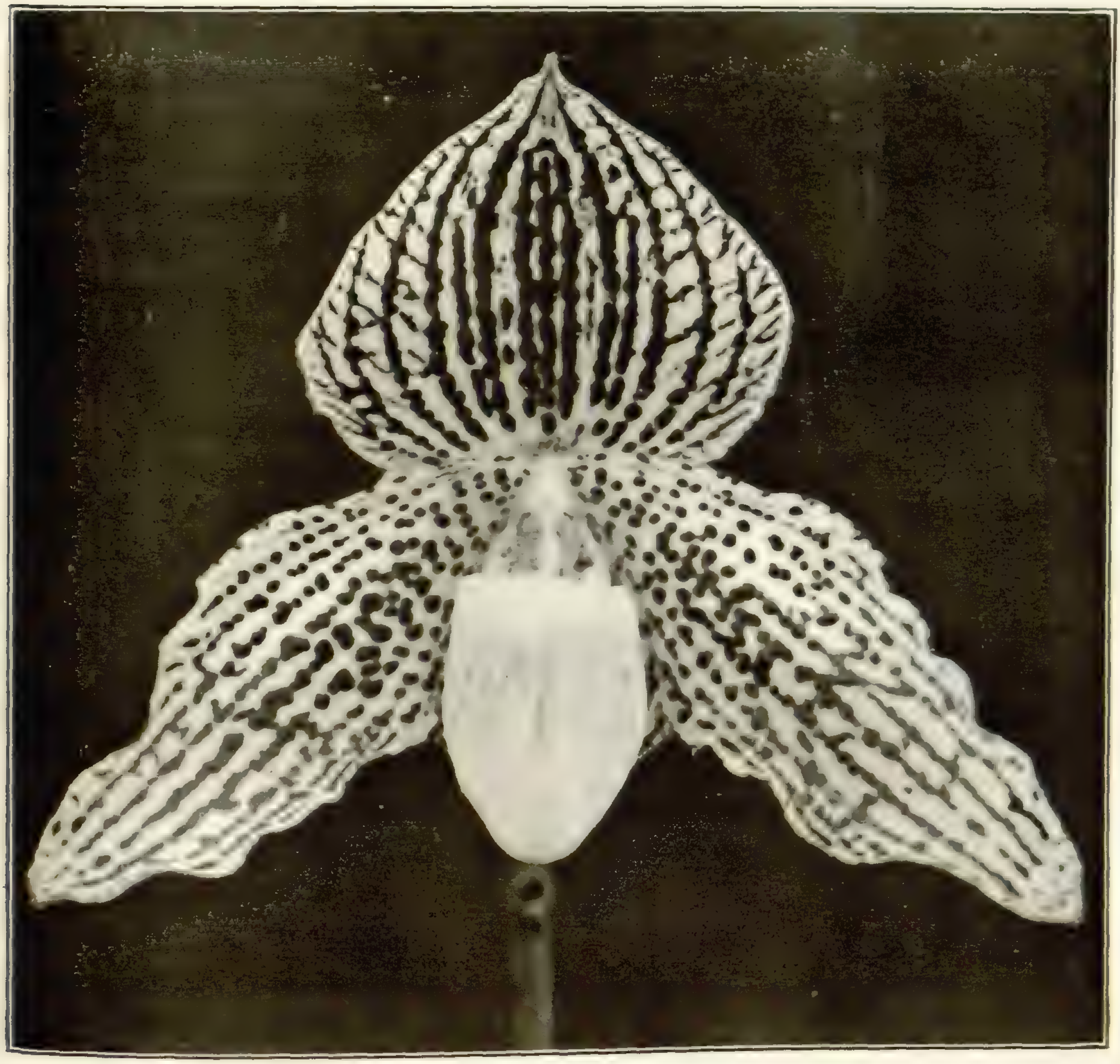
Messrs. A. J. Keeling & Sons obtained several prizes in the various classes, their most interesting plants being the distinct Cypripedium St. Swithin, a very fine variety of Miltonia Bleuana, Lc. Teucra magnifica, Bc. Pallas and Bc. King Emperor.

J. McCartney, Esq., received prizes for Blc. Roumania, a large pure white flower with violet-purple blotch on the lip, Lc. Fascinator, Lc.

(*Continued on page* 222.)

CYPRIPEDIUM FLETCHERIANUM VAR. ANTINEA.

PROBABLY in no other genus of the Orchidaceæ have so many hybrids been raised as in Cypripedium. They differ much not only as regards the parentage, but also in the varieties of any particular cross. This difference becomes much more apparent the farther we get away from primary hybrids, and while it creates additional novelties, it gives, on the other hand, no small amount of difficulty to those who endeavour to trace



CYPRIPEDIUM FLETCHERIANUM VAR. ANTINEA.

back the parentage through the evidence of specific characters exhibited in the flower.

Our reproduced photograph is of Cypripedium Fletcherianum var. Antinea which received a First-class Certificate at the recent Chelsea Show when exhibited by Messrs. Cowan & Co. It results from the crossing of C. Godefroyæ leucochilum with Cyp. W. R. Lee (Rothschildianum × superbiens). The latter parent first appeared in 1894, but in the following

year a hybrid of similar parentage received the name Lord Derby, which, although better known in gardens, must give place to the former for reason of priority.

In this case the parentage presents no real difficulty, for it comprises the three species Godefroyæ, Rothschildianum and superbiens. The general formation of the flower shows, as would be expected, most of the characteristics of Godefroyæ, the well-known broadly formed lateral sepals of this species considerably increasing the width of the same segments of the other parental species. The ground colour is yellowish, while the purplish-red markings are very effectively arranged in neat lines of small dots that frequently join one another. On the dorsal sepal each of the outer vertical lines is connected with the next at short intervals by nearly horizontal lines of similar colour, thus creating a striking hybrid of considerable distinction and well worthy of being placed in the highest grade of the R.H.S. certificated plants. The flower extends to a width of five inches. The variety leucochilum of Godefroyæ was used.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Bedfordiensis	C. Dirce × Bc. Digbyano Mendelii ...	Sanders.
Brassocattleya The Queen	Bc. Digbyano-Mossiæ × C. Lady Veitch ...	Sanders.
Brassocattleya Villa Jeanne	C. Empress Frederick × Bc. Dietrichiana ...	Stuart Low.
Brassolæliocattleya Marian	Bc. Marg. Fournier × Lc. Canhamiana ...	Stuart Low.
Brassolæliocattleya Miss Fitzpatrick	Blc. Veitchii × C. Mossiæ	Sanders.
Brassolæliocattleya Mrs. J. T. Watson	Lc. callistoglossa × Bc. Mdm. C. Maron ...	Sir H. Leon.
Cattleya Aureal s	nobilis × Dowiana aurea	Sanders.
Cattleya Lady Duncan	C. Helen Langley × C. Mossiæ	Mansell & Hatcher.
Cattleya Phillipa	H. S. Leon × Dowiana aurea	Sir H. Leon.
Læliocattleya Almos	Lc. Pallas × C. Mossiæ	Sir H. Leon.
Læliocattleya Cintra	Epicasta × Orion	McBean.
Læliocattleya Clarilaw	C. Schrœderæ × Lc. Helius	McBean.
Læliocattleya Emily Metinuen ...	Apollo × Baldockiana	F. J. Hanbury.
Læliocattleya Homily	Haroldiana × Medina	McBean.
Læliocattleya Maxim	Lc. Hyeana × C. Schrœderæ	Stuart Low.
Læliocattleya Tenemos	L. Tenebrosa × Lc. Domos	Sanders.
Læliocattleya Vaison	C. Mendelii × L. Cowanii	McBean.
Lycaste Gratrixiæ	plana × Lawrenceana	Sanders.
Miltonia Mrs. Bran Peck	vexillaria × Sanderæ	Mansell & Hatcher.
Odontioda Bantingii	Odm. Uro-Skinneri × Oda Bradshawiæ ...	Mansell & Hatcher.
Odontioda Murillo	Oda. Chanticler × Odm. Aglaon	Cowan.
Odontioda Selina	Oda. Othello × Odm. Lady Roxburgh ...	Sir J. Colman.
Odontoglossum Adelaide	Rolfæ × Lindenii	Cowan.
Odontoglossum Halcyon	amabile × Lawrenceanum	Sanders.
Odontoglossum Mirumense	Aireworth × mirum	McBean.
Odontoglossum Nanon	Nathaniel × promerens	Cowan.
Odontoglossum Perseus	Rolfeæ × Leander	Sanders.
Odontoglossum Selina	Maid of Gatton × ?	Sir J. Colman.
Odontonia Gratrixæ	Odna. Magali Sander × Odm. Rio Tinto	Mrs. Gratrix.
Odontonia Stelpæ	M. Bleuana × O. Harwoodii	Charlesworth.
Sophrolæliocattleya Lena	Slc Laconia × C. Ena	Sanders.

CHELSEA SHOW, MAY 29TH, 30TH, 31ST, 1923.

ONE of the best groups of Orchids ever seen at the Chelsea Shows was that staged by Messrs. Charlesworth & Co. It was awarded the Sherwood Challenge Cup for the most meritorious exhibit in the whole show, as well as a Gold Medal and the Special Congratulations of the President and Council of the Society. The central area was built up strongly with many varieties of Læliocattleya Fascinator intermixed with the bright golden-yellow forms of Odontoglossum Wilckeanum aureum. At the right end was a bank of several dozen well-flowered plants of Odontoglossum crispum xanthotes, eximium xanthotes and white forms of ardentissimum, the combined effect being very beautiful. At the left end were numerous varieties of Odontiodas, ranging in colour from light scarlet to intense red, some dark chocolate. In the recesses were staged some of the new Miltonia hybrids, including those with the blotched lips, and those daintily marked on the lip, such as Venus, Lyoth, and Dulcis. In another area were to be seen selected Cypripediums, of which the greenish Maudiæ came in for much appreciation. Cœlogyne burfordiensis carried a spike of a dozen greenish flowers, while the elegant Vanda teres was also in fine condition. Of the Odontoglossums there were many worthy of description, among them being St. George, with six immense red-brown flowers; eximillus, with a spike of large, handsomely blotched blooms; and plumptonense, another giant of its kind, prettily marked with rose-lilac. An interesting species was seen in Od. cordatum aureum, and a pleasing novelty in Odontonia Stelpæ, yellow with red-brown markings. Odontioda Gwendoline carried a branched spike of flowers neatly blotched with ruby-crimson. In prominent places were several grand Cattleya hybrids, including Brassocattleya Cliftonii magnifica, and Sophrolæliocattleya Anzac, with richly-coloured flowers. Quite a blaze of colour was produced by massing well-flowered plants of Læliocattleya G. S. Ball. The attractive orange-red tints of this hybrid received much comment, and proved that although known for many years it is still of great utility. Several interesting novelties were along the front rows, specially noteworthy examples being Vuylstekeara insignis, V. Zena, rich crimson, V. Nysa (M. Bleuana × Oda. Royal Gem), Odontonia Bedfordiæ and Odontonia Olivia, with a spike of five large golden-yellow flowers, the segments blotched with red. Odontoglossum crispum is always a favourite, and in this exhibit it was well seen in excellent varieties of the Premier type. Cattleya Skinneri was represented by Temple's variety, and bore numerous many-flowered spikes of dark rose-purple colour. Several young plants of Miltonia vexillaria were the result of crossing two dark varieties of this popular species, and when sufficiently grown should make striking forms. The curious Lycaste plana,

as well as Platyclinis uncata were noticed, as also was the purplish Potinara Juliettæ. Standing on a pedestal was Læliocattleya Circe, with a spike of several particularly bright flowers of clear yellow colour.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), was awarded the Cain Challenge Cup for the best exhibit by an amateur in the whole show, as well as a Gold Medal. This was in every way a most praiseworthy exhibit; not only were the plants in excellent condition, but the staging was good and the general effect all that could be desired. Instead of separating plants of the same kind throughout the group, they were massed together so as to yield a bold design. For example, Cypripedium Maudiæ was seen with over a dozen flowers close together, and a little further along was a mass of snow-white blooms carried on Cattleya Magali Sander, then came an artistically-set area of scarlet and red Odontiodas, followed by another little batch of Cypripediums, and after it an array of richly-coloured Masdevallias. Along the back row were to be seen splendidly-flowered specimens of Oncidium McBeanianum, with yellowish and brown flowers, also Oncidium Marshallianum, with golden blooms. Arranged on a stand was the beautiful Cattleya Cowaniæ alba, and on another Læliocattleya Excelsior, with a dozen finely-developed flowers, the petals prettily flushed with bright purple. Another charming hybrid was C. Arras. Cymbidium Castor var. Laburnum was a constant source of attraction, its elegant flowers coming in for much appreciation from the numerous visitors. Odontoglossums were very well shown, and comprised three fine plants of O. crispum Oakfield Sunrise, the petals of this variety being streaked with brownish red, while O. crispum Beauty of Ashtead stood out well. Mention may also be made of Vanda cœrulea, one of the very few examples of this species seen at the show, and of specially well-flowered plants of Renanthera Imschootiana. Cattleya Bronacha alba carried six superb white flowers. Of the Læliocattleyas there were many grand examples, including Ganymede, very pretty, having flowers of orange-buff with a rose-purple lip; Lc. Canhamiana alba, the elegant Lc. Domos, and a fine plant of the typical Lc. Canhamiana with ten large blooms. Even such comparatively insignificant species as Ada aurantiaca were well staged, while Miltonia vexillaria var. Empress Augusta proved that almost all sections of Orchids are cultivated with equal success in this well-known amateur's collection.

Messrs. J. & A. McBean received a Gold Medal for a magnificent exhibit of Odontoglossums. Commencing with O. crispum Gibraltar, a massive white variety, and O. crispum Esmeralda, a grand typical form with two spikes of nine flowers each, there was a grand series right up to the variety in which the whole flower was saturated with colour. Of the well-known O. eximium there was the variety Alpha, and of O. Faustina an exceptional

one with bright red-purple blotching, while O. Doreen splendens had a splendid spike of bloom. In recesses were arranged several fine varieties of O. crispum xanthotes and the red Odontioda Charlesworthii, while the central area was composed of Cymbidiums, including Pauwelsii, and other hybrids. In front was to be seen Od. Doreen, with a spike of twelve massive flowers, and at other places excellent examples of Miltonia vexillaria G. D. Owen, M. Blueana rosea, M. Roezlii alba and several with handsomely blotched lips. Along the back were neatly-arranged specimens of Oncidium McBeanianum, with trailing spikes of many flowers, also Od. Hyeanum, with two long spikes carrying a total of thirty-one large yellow and brown flowers. Cattleyas included Cowaniæ alba, some fine varieties of Skinneri, while Læliocattleyas were represented by richly-coloured varieties of Dominiana, a pretty form of Caroline, Isabel Sander, Clarilow, of orange-red tint, and the graceful McBeaniana. Odontioda Cooksoniæ, Fowler's variety, was in excellent form, and so, also, was Oda. Flamingo, with flaming-red flowers. A somewhat rare species was staged in Odontoglossum hastilabium, with a tall erect spike, and a dwarf growing one in Maxillaria nigrescens with rich reddish coloured flowers. Excellence in culture was specially noticeable.

Messrs. Sanders were awarded a large Silver Cup for an extensive exhibit in which the centre part was most effectively filled with Cymbidiums, of which Garnet and Vesta, both with many-flowered spikes, are worthy of mention. Beneath them was a magnificent specimen of Cattleya Mossiæ Wageneri, carrying over twenty flowers, and surrounded by a selection of Odontiodas, that called Chanticler being of special merit on account of its rich reddish-scarlet flowers. One end of this group was made up with Miltonia hybrids, including the fine varieties known as Butterfly, St. André and Blueana. Near to them were noticed robust plants of Thunia Brymeriana, the pretty flowers looking at their best when staged in an elevated position. The other end was built up with a selection of Læliocattleyas of the Canhamiana type and several choice Cypripediums. An elegant species was seen in Aërides Fieldingii, with a pendulous spike of many rose-tinted flowers. Cattleyas were represented by the Westonbirt variety of C. Skinneri, some grand forms of C. Tityus, that distinguished as Goldcrest having a golden throat. A now-scarce species was well shown in Phalænopsis Rimestadiana, also in Vanda cristata, and several Masdevallias. Læliocattleyas were specially numerous, and included five forms of Isabel Sander, the Rosslyn variety of Canhamiana, with four grand flowers, San Juan, with nine blooms of attractive quality, Aphrodite bicolor, in which the petals are flushed with purple, a large plant of Dominiana, carrying eleven flowers, and Britannia var. Majestic with a spike of five strongly-set blooms. A fine effect was produced with Cymbidium Landrail var. Ophir,

cream with a greenish tinge, and also with Odontioda Grenadier, with a spike of twenty-three rich scarlet flowers. Among the albino Cypripediums were Curtisii Sanderæ, callosum Sanderæ and Maudiæ, all finely grown and bearing well-developed flowers. An uncommon species was seen in Dendrobium amœnum, with numerous delicately-tinted blooms, while in Miltonia A. C. Burrage was staged one of the best hybrids of its kind, the plant carrying sixteen large flowers of soft rose tint, the lip marked with a dark maroon blotch.

Messrs. Stuart Low & Co. received a large Silver Cup for an excellent exhibit containing a fine series of Læliocattleyas, the most prominent being dark forms of Dominiana, the new Dolomite, several distinct varieties of Canhamiana, a pleasing type of Aphrodite, that distinguished as Aphrodite Sunray having flushed petals, Goldcrest with cream coloured sepals and petals and a purple lip, as well as several good forms of G. S. Ball, with orange-yellow flowers. Along the top portion were to be seen well-flowered examples of the red Renanthera Imschootiana, Oncidium superbiens and McBeanianum, as well as large flowered varieties of the scarce Phalænopsis amabilis. A special attraction in this group were several excellent plants of Selenipedium grande, the long tailed petals of which hung down in ribbon-like style. A rarity was staged in Vanda Parishii and in the curious Bulbophyllum nudiscapum, as well as B. Lobbii. A remarkably fine specimen of Dendrobium Parishii bore numerous rose-tinted flowers, and D. thyrsiflorum carried several massive spikes of bloom. A feature of this group was the fine series of Cypripedium bellatulum, some showing much density of the spotting. Cypripidum Rothschildianum came in for a fair share of appreciation, while C. Goweri magnificum met with favour on account of its extra dark coloration. C. Venus and C. Maudiæ were in fine form. Of the many hybrids of Brassavola Digbyana mention may be made of Blc. Winifred, with large flowers of deep rose-pink colour, Blc. Queen of the Belgians, and Blc. Truffautiana var. Triumph. An interesting plant was Bulbophyllum saurocephalum, which carried eight spikes of flowers that had then been open over a month. Odontoglossum Doreen was one of the best of its kind, the round petals being handsomely marked. Od. cordatum included several examples, and there were also distinct varieties of Cattleya Schroderæ. No spring show is complete without the singular Bulbophyllum barbigerum, with its ever-moving feather-like lip, and here it was seen in perfection. Cœlogyne burfordiensis with a spike of greenish flowers, Oncidium Papilio, always an attraction to amateurs, and the scarce Promenæa citrina, with citron-yellow flowers, were neatly arranged.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. Collier), was awarded a Silver Cup for a most interesting collection, truly representative of all sections. Dendrobiums were one of the features, and included the

elegant D. Golden Sunray, which secured a First-class Certificate, the handsome D. acuminatum with a spike of eighteen rose-carmine flowers, D. Brymerianum, golden-yellow with a delicately fringed labellum, D. Victoria Reginæ, of slate-blue colour, and D. arachnites bearing numerous blooms of reddish tint. Among the Læliocattleyas were the Gatton Park variety of Lc. G. S. Ball, always pleasing, and the beautiful Lc. Golden Glory, with bright golden-yellow segments. Cypripediums were in fine order and comprised Rothschildianum, a well-flowered example of Chamberlainianum and selected hybrids. Miltonias with blotched lips, and M. vexillaria Snowflake were effectively staged, while the Cattleyas included Harold, with white sepals and petals and a rose-tinted lip, as well as the Quorndon House variety of Mendelii. Several rare species were in excellent condition, they comprised Lycaste Locusta, with weird-looking flowers of dark green colour, Lissochilus purpuratus, a nice example of Nanodes Medusæ, and a well-flowered plant of Bifrenaria species. In the front row was the beautiful Odontioda Merope vivicans, with a large flower of rich rose-purple colour, while in other prominent positions were arranged Odontoglossum Wilckeanum aureum, O. crispum solum, with a good spike of bloom, and O. crispum var Leonard Perfect, one of the best of the old blotched forms. Several specimens of Masdevallia, including the Gatton Park variety of Harryana, showed to advantage.

Messrs. Cowan & Co., Southgate, were awarded a Silver Cup for an excellent group of choice hybrids and attractive species. Cymbidiums were in fine form, and embraced the rare C. Devonianum, with a many-flowered pendulous spike, as well as Ring Dove, cream-coloured with a spotted lip, Curlew, Wigeon, and Vesta. Cattleyas were a special feature, among them being excellent forms of Tityus, the beautiful Douai, with pure white flowers of large size, also Apollo alba and several grand varieties of their Brassolæliocattleya Jupiter. Cypripediums were well represented by Fletcherianum var. Antinea (Godefroyæ leucochilum × W. R. Lee) and Masdevallias by the pretty Bonplandii, with numerous flowers. A novelty was seen in Odontoglossum Adelaide (Rolfeæ × Lindenii), a rarity in O. hastilabium, of which there were two fine specimens, while O. crispum was well represented. Among the meritorious hybrids O. promerens xanthotes stood out well, as also did Jasper, and a large one named Nanon, the result of crossing Nathaniel with promerens. Od. Serapis var. Dusky Monarch received an Award of Merit, as also did Odontioda Murillo. Another fine hybrid was Odontoglossum Purple Crown, large, with much purple suffusion and blotching, while in Odontiodas Felicity and Amethyst there were several examples that varied from light scarlet to dark red. Maxillaria Sanderiana represented this genus in characteristic style, and there were many plants of the well-known Oncidiums and Odontoglossums.

Messrs. Cypher & Sons received a Silver Cup for a splendid exhibit including representatives of all sections. Hybrids of Brassavola Digbyana were excellent, Bc. Digbyano-Mossiæ carried five immense flowers, Bl. Digbyano-purpurata was also well-flowered, and Blc. Veitchii had blooms unusually dark in colour. The Læliocattleyas embraced fine forms of Dominiana and Aphrodite, as well as Rothmilmartin, very pretty, and another called Glowworm, in which the medium-sized flowers were of a pleasing golden tint. Anguloa Clowesii is always an interesting plant, and was here well staged, while in Bulbophyllum barbigerum, with its ever-moving lip, there existed another attraction for the numerous visitors. Some rare Masdevallias and other species were in the front row, while along the back were splendid specimens of Epidendrum hybrids of the radicans section, their many-flowered spikes presenting fine heads of orange-red colour. Cypripediums were numerous, the best being St. Swithin (Rothschildianum × lævigatum), with long petals, Goweri magnificum, very dark, and the old barbatum, now scarce. Selenipedium grande was another attraction in this section, its long-tailed petals hanging down gracefully over well-flowered examples of Masdevallia Wallisii and M. Schlimii. Chysis Limminghii was in excellent condition, and neatly arranged by themselves were selected varieties of Cypripedium bellatulum, Maudiæ, callosum and its albino variety Sanderæ. Odontoglossum maculatum and O. citrosmum well represented two old-time species.

Messrs. Flory & Black were awarded a Silver-gilt Medal for an excellent group which contained two of the finest Cattleyas in the Show, while in Cattleya Dr. M. Lacroze the bold flower had an intense ruby-crimson labellum. There were also several distinct varieties of C. Heatherwood (Mossiæ × Tityus), as well as a fine pure-white one called The Bride. Although Læliocattleya Dominiana has been in existence for many years the varieties here staged were quite equal to other hybrids of much later origin. Another fine hybrid was seen in Brassolæliocattleya Caligula, with its expansive labellum of purplish coloration, and in Blc. Rumania, with a large pure-white flower. Odontiodas were shown in variety, and Miltonias embraced several blotched forms of the vexillaria section. The Sophronitis hybrids were a speciality in this group, some of the best being staged in Sophrocattleya Clarinda, wine-purple in colour, the lip cream-coloured and bordered with rosy-purple, and Sophrocattleya Eva, of round form and rich colour. Another was seen in Sophrolæliocattleya Hanningtonii, with neatly-formed blooms of reddish tints. Some special varieties of the popular species were in fine condition, while masses of golden-yellow colour were produced by strong plants of Dendrobium chrysotoxum. Odontoglossum Dusky Monarch carried a spike of chocolate-purple flowers.

Messrs. Mansell & Hatcher were awarded a Silver-gilt Banksian Medal

for a very effectively-arranged group, the plants being mostly on three elevated circular stands. Læliocattleyas were particularly numerous, and included fine varieties of both the popular Aphrodite and the charming Fascinator. Lc. Ypres, produced by crossing Aphrodite with Fascinator, was also well represented, one variety being especially praiseworthy. Cattleya Lady Duncan, a novelty obtained by crossing Mossiæ Wageneri and Helen Langley, carried large pure-white flowers, the lip light yellowish. Another fine albino Cattleya was seen in C. Magali Sander. Among the large flowering hybrids of Brassavola Digbyana mention may be made of Brassolæliocattleya Jupiter, with charming tints of rose. In the recesses were many specimens of Miltonia vexillaria, including a selection of the blotched lip varieties and a grand plant of M. vexillaria leucoglossa, with an abundance of showy flowers. Odontiodas were well represented in Sunbeam var. Allan Gill, of bright crimson colour, and in Bantingii, of which the parents are Odm. Uro-Skinneri and Oda. Bradshawiæ, the flower closely resembling the former parent. Odontoglossum Cordoba (eximium × Doris) was of fine shape, and neatly blotched with violet-purple. Among the Cypripediums one could not help noticing the fine erect spikes of Maudiæ, with their restful colour of greenish tints.

H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood), received a Silver Banksian Medal for a very interesting exhibit of rare species and choice hybrids. In the centre was a good spike of Cymbidium insigne, surrounded by several elegant varieties of Læliocattleya Fascinator. Among the Miltonias were vexillaria alba and the Dulcis variety of Venus, while Odontiodas included the richly-coloured Cardinal and a dark red form of Joan. Cypripediums were well seen in Curtisii Sanderæ, and in the newer Enchantress. Cœlogyne nervosa and C. Burfordiensis were both in splendid condition, as also was the singular Nanodes Medusæ. A varied selection of beautiful Odontoglossums included crispum Oakfield Sunrise, the elegant harventense with round flowers of yellow and brown, as well as Antinous, the latter being of golden hue blotched with brown. The rare Microstylis Scottii was also noticed.

Mr. Harry Dixon received a Silver Flora Medal for a very pleasing exhibit containing an unusually fine variety of Lycaste Skinneri alba, a well-flowered plant of Maxillaria nigrescens, with reddish-crimson flowers, as well as M. tenuifolia. The elegant Cypripedium callosum Sanderæ was in excellent condition, as also was Brassolæliocattleya Triune. Among the rare species Aërides crispum came in for appreciation, while Masdevallias were seen in many-flowered plants of M. Bonplandii and the curious M. Chimæra Wallisii. A varied selection of Odontiodas, both light scarlet and dark red forms, as well as some pleasing forms of Odontoglossum crispum assisted in completing the decorative effect. Læliocattleya Helius

(C. Mossiæ × Lc. G. S. Ball), with a spike of several medium-sized flowers of a charming apricot colour, came in for its due share of appreciation.

Messrs. Armstrong & Brown staged a remarkably fine specimen of Dendrobium acuminatum, to which Cultural Commendation was given, and also the handsome Odontoglossum Victory var. Supreme, with three immense flowers having the segments blotched with red-purple.

J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne), exhibited his beautiful variety of Brassolæliocattleya Jupiter, with two flowers each measuring ten inches across.

ODONTONIA OLIVIA.

DURING the last ten years the cool growing section of Orchids has been enlarged by the creation of hybrids between Miltonias and Odontoglossums. Their generic name Odontonia is thus well formed. The number of these elegant crosses now totals 25. To the amateur there is in almost all genera one particular organ that stands out prominently and appeals to him on account of its attractive qualities; in Odontoglossum it is the broad petals; in Miltonia the expansive labellum.

The majority of Odontonias have Miltonia Bleuana (vexillaria × Roezlii) as one of their parents, for when making use of this large-flowering plant the hybridists hoped that its expansive labellum would be perpetuated in the following generation. This anticipation has been realised to a favourable extent, for not only have several very distinct novelties been produced, but a section of hybrids has been raised that can be grown with success in an atmosphere which is generally a little too warm for Odontoglossums, as occurs in many localities in the United States of America.

Our illustration is of Odontonia Olivia, the result of crossing Miltonia Bleuana with Odontoglossum triumphans var. Crawshayanum. It was exhibited by Messrs. Charlesworth & Co. in their superb group at the recent Chelsea Show, when an Award of Merit was granted. The flowers were much larger than seen in the photograph, and had lost some of their beauty, for nearly seven weeks had elapsed between the time of their first opening and the R.H.S. Committee's award. When at their best the ground colour was bright golden-yellow and the blotches light chestnut-red, the contrast being very marked. One can well imagine the fine effect that will be produced by this plant when grown into a specimen with a dozen or more spikes of flowers arranged gracefully around it. The Chelsea Shows of the future will surely contain such specimens, and when they do appear there will be heard the remark: "Ah! most beautiful, and I can remember the time when they first appeared with single spikes of four or five flowers."

We thank the Editor of the *Gardeners' Chronicle* for kindly lending the illustration.

ODONTONIA OLIVIA (M. BLEUANA × O. TRIUMPHANS CRAWSHAYANUM). *(From 'The Gardeners' Chronicle')*

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

AS a rule the general work of repotting Orchids will be near completion, but where a miscellaneous collection is grown, there are at all seasons certain species and hybrids that have recently passed out of flower and will need overhauling at the roots, among which may be mentioned Sobralias. These plants are vigorous and easily grown; they produce thick fleshy roots, and are somewhat impatient of too frequent root disturbance. In repotting, they should be afforded rather a retentive compost. The pots or pans should be well drained, and the rooting medium may consist of three parts good fibrous loam broken up rather roughly, and one part AI or osmunda fibre, with a sufficient quantity of crushed crocks and coarse silver sand to ensure porosity. Pot moderately firm, and when the work is finished the base of the plant should be a little below the rim of the pot. Newly potted plants should be watered carefully until the new roots have grown into the compost. Other examples that do not require repotting, and have well filled their pots with roots, will need plenty of water during the summer months, and may be assisted with a watering once or twice each week with a weak solution of cow manure while they are growing freely. Sobralias thrive well in a moist shady position in an intermediate temperature. Being subject to attacks of red spider, they should be syringed freely on all favourable occasions, taking care to wet the undersides of the leaves. The foliage should also be sponged occasionally with a suitable insecticide.

EPIDENDRUM PRISMATOCARPUM.—As plants of this species pass their flowering period they should be given attention at the roots. Specimens that have become pot-bound, and overgrown their rooting space, should be taken out of their pots, the back pseudobulbs cut away, leaving only two or three behind each leading growth, afterwards placing several together in moderate-sized pans. Make the soil firm around the rhizomes, and arrange them so that two or three of the leading growths point to the centre, thus making a well-balanced specimen. Plants that do not require repotting will be benefited by having some of the old materials removed from the surface and given a top-dressing. For a few weeks after repotting, keep the soil rather dry, but whenever moisture is applied give a thorough soaking, taking care that water does not lodge in the centre of the young growth. The plants grow well in the coolest and lightest part of the Cattleya house.

EPIDENDRUM BICORNUTUM (Diacrum bicornutum).—Plants of this species and its hybrids will soon be making fresh growth, and as soon as new roots develop from the base the plants may be repotted if necessary.

Ordinary flower-pots are suitable, filled to half their depth with drainage material, as during their growing season liberal supplies of water at the roots will be needed. Previous to repotting the plants cut away any useless back pseudo-bulbs, retaining only two or three behind the lead. Those cut off may be utilised for propagating purposes. The plants should be given a position near the roof glass in a high temperature and moist atmosphere. A suitable rooting medium for all the above-mentioned Epidendrums is Osmunda-fibre, broken up rather roughly, and a small portion of sphagnum-moss.

THUNIAS.—Although the flowers of Thunias do not last long after their full expansion they are, nevertheless, very attractive, the fresh green foliage and fine arching flower-spikes showing to excellent advantage. As the plants pass their flowering stage they should be removed to a cool, well ventilated greenhouse, where the temperature does not fall below 55°. The stems and leaves should be exposed gradually to the full sunlight, where they will finish up and consolidate their growths. When so treated the plants are subject to attacks of red spider. To prevent this they should be placed on their sides and syringed at intervals with a suitable insecticide, allowing sufficient time for the leaves to become dry before syringing the plants again with clear water. Water should still be afforded at the roots each time the soil becomes dry, and so long as the leaves remain green, but when they commence to change colour the supply should be gradually withheld. Any plants that have failed to produce flowers, and the stems are growing to an unreasonable length, should have the points of the shoots pulled out and the plants subjected to the same treatment as those that have bloomed. If it is desired to increase the stock, they may be readily propagated during this month by taking off the old back stems nearly down to the base, and cutting them off to the joints in lengths of about four inches, and inserting them as cuttings in small well-drained pots, using a mixture of chopped sphagnum-moss and silver sand. If the cuttings are placed in a frame in a warm house they will soon develop roots and top growth, when they may be potted singly in a rich compost. When growth is completed these plants should be rested in a similar manner to that adopted for the older plants.

CATTLEYAS.—Plants of C. Gaskelliana, C. labiata, together with C. Bowringiana, and their many hybrids that make new growth during the summer months, and which flower during the autumn, are making considerable progress. It is advisable at this season to keep them elevated well up to the roof glass in order to consolidate their growths. Water should be afforded rather liberally, but as soon as the pseudo-bulbs are matured the water supply at the roots should be considerably reduced, for if these autumn-flowering Cattleyas are overwatered at this period it frequently causes the new pseudo-bulbs and roots to decay. Seedling Cattleyas and

Lælias should be kept growing without a check until they have reached the flowering stage. If possible they may be afforded rather a warmer temperature than the parent plants. Greater success is obtained when a house is devoted entirely to raising and growing seedlings, affording them a winter temperature of from 60° to 75°, and a moist atmosphere at all times. Remove the plants on into larger pots as they require increased rooting space, and never allow them to become pot-bound.

LÆLIA PUMILA.—This small cool-growing Lælia is now making new growth, and as young roots develop from the base they should be repotted or have fresh materials applied at the surface. These plants require liberal supplies of water at the roots during their growing season, therefore it is important that the compost is sweet and in a porous condition. Shallow pans without side holes, with wires attached for suspending are suitable receptacles, these should be well drained. Use only a thin layer of soil, which may be composed of osmunda fibre and sphagnum moss cut up rather short, with crushed crocks mixed to ensure porosity; press the compost rather firmly round the base of the plant and prick in a few live heads of sphagnum moss over the surface. For a short time after re-potting water should be sprinkled over the surface only, and when the young roots have become well established in the new compost, the plants should be dipped in tepid rain water each time the soil becomes dry, and sprayed overhead whenever the weather is favourable. This treatment should be continued till after the plants have passed out of flower, when they should be kept slightly on the dry side throughout their resting season.

ODONTOGLOSSUM CITROSMUM.—By the time plants of this Mexican species have passed out of flower, the young growths will be well advanced, and as they push forth new roots from the base they should be repotted if necessary, ordinary Orchid pans of medium depth may be employed, as these plants are not of a vigorous rooting kind. The pans should be just large enough for two seasons only. Afford good drainage, and a shallow compost of osmunda fibre cut up rather short. In repotting remove all useless back pseudobulbs, pot firmly, and suspend the plants near the roof-glass in the lightest part of the intermediate house. Apply water sparingly until the new pseudobulbs are getting near completion, when the compost should be well watered each time it becomes dry. When the growth is fully developed, water should be gradually withheld, and the plant given a long season of rest.

THE VINE HOUSE COLLECTION.—This collection, formed by the late Mr. A. Warburton, and famous for the fine varieties of Odontoglossum crispum of the best old Pacho type, is to be sold by private treaty. Full particulars from Messrs. A. J. Keeling & Sons, Westgate Hill, Bradford.

ROYAL HORTICULTURAL SOCIETY.

June 12th, 1923.

MEMBERS of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), the Hon. Henry J. McLaren, C. J. Lucas, Fred K. Sander, H. T. Pitt, E. R. Ashton, Pantia Ralli, Fred. J. Hanbury, Gurney Wilson, C. H. Curtis, and J. E. Shill.

FIRST-CLASS CERTIFICATE.

Odontoglossum Goldcrest, from Messrs. Armstrong & Brown. A very beautiful hybrid bearing an arching spike of 13 flowers, all the segments prettily spotted with bright lemon-yellow, and the elongated labellum having a spiny crest at its base. No parentage was recorded on the official entry paper.

AWARDS OF MERIT.

Miltonia William Pitt (Isabel Sander × Blueana var. Reine Elisabeth), from H. T. Pitt, Esq., Stamford Hill. Although this seedling was far from being in a matured state, the single flower showed such promising qualities that the Committee also gave it a Certificate of Appreciation. The petals are flushed with intense purplish-crimson, except for the white tips, the wide labellum has the central area purplish and a brownish mask at the base.

Odontioda Corona var. Rajah (M. Warscewiczii × O. Harryanum) from Messrs. Charlesworth & Co. An attractive primary hybrid with a many-flowered spike of medium sized blooms, the sepals and petals chocolate-red tipped with gold, the broad labellum having a purplish base and a white apical area.

GROUPS.

Messrs. Hassall & Co, were awarded a Silver Flora Medal for a fine exhibit of their large flowering Brassolæliocattleya Jupiter, the varieties showing a wide variation in the degree of colouring. Cattleya Dupreana carried a spike of four richly coloured flowers, and there were nice forms of Læliocattleya Aphrodite and Lc. Canhamiana. Along the front were well-flowered plants of Cypripedium Curtisii Sanderæ, Cyp. Alma Gevært, and Cyp. Emerald (Curtisii Sanderæ × Maudiæ). Among the Odontoglossums were Agapetum with a spike of eleven flowers, yellow with chocolate blotching; Od. Victory, with large reddish blotches; and Od. crispum Louise, a fine variety of the imported class. Phalænopsis amabilis was in excellent condition, and Odontiodas added touches of bright red colour.

Messrs Stuart Low & Co., received a Silver Flora Medal for a very well arranged exhibit in which were fine plants of Oncidium superbiens and the interesting Selenipedium grande. Cypripediums were seen to advantage in Lawrenceanum, niveum and Godefroyæ, and Odontoglossums in Halli and

the large flowering Williamsianum. A feature of this group was a fine plant of Cattleya Warscewiczii (gigas), bearing a spike of five flowers. Sophrocattleya S. W. Flory was attractive, as also were some fine varieties of Brassocattleyas and several rare species.

Messrs. Sanders were awarded a Silver Flora Medal for a large exhibit containing in the centre a grand specimen of Cœlogyne albanensis (pandurata × Sanderiana) with four spikes and about fifty handsome flowers. Angulocaste Joiceyi and Lycaste macrophylla were in prominent positions, while along the back were noticed a richly-coloured variety of Læliocattleya Leonora, the now scarce Lælia tenebrosa, Dendrobium pulchellum and the elegant D. suavissimum. Several Miltonia hybrids were effectively staged, and along the front some interesting Masdevallias, including velifera and Bocking hybrid.

R. Gerrish, Esq., Milford Manor, Salisbury (gr. Mr. Sorrell), exhibited Odontoglossum Fabia var. the King, a grand form with large flowers, having broad, well-set petals handsomely blotched with reddish-purple.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. Collier), staged Odontoglossum citrosmum roseum, an unusually fine variety. The spike carried eleven flowers, the sepals and petals of rose-pink colour, and the broadly-developed labellum rose-lilac with a yellow crest. Also Dendrobium Gatton Sunray magnificum, a richly-coloured form of this handsome hybrid between Dalhousieanum and illustre.

Messrs. Charlesworth & Co. staged Miltonia Venus var. Princess Maud, one of the largest forms yet seen of this hybrid between the two species Phalænopsis and vexillaria. The spike carried four flowers, the unusually large labellum prettily marked with radiating lines and dots of a wine-purple colour.

GRAND YORKSHIRE FLOWER SHOW.

(*Continued from page* 206.)

Canhamiana alba, Lc. Gladiator and Miltonia Charlesworthii; all were good specimens and well flowered.

A. C. Lister, Esq., secured two First Prizes and a Second. His plants included Brassia verrucosa, Cattleya gigas, Læliocattleya Aphrodite, Miltonia Lyoth and Cypripedium Goweri, all very well flowered. Others shown by this amateur were the rare Masdevallia O'Brieniana, M. simula, and Promenea citrina.

Joseph Rowntree, Esq., was placed first in the class for a single specimen Orchid. In the class for three Orchids Messrs. Keeling were placed first, Messrs. Cypher second, and Mr. J. McCartney third.

MANCHESTER ORCHID SOCIETY.

May 3rd, 1923.

MEMBERS of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, W. Giles, Dr. Hartley, A. Hanmer, J. Howes, J. Jackson, H. M. Jackson, A. Keeling, D. Losh Thorpe, J. Lupton, D. McLeod, E. W. Thompson, J. Whitham and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum Tagus var. Eros, round flower, solid plum colour, lip with apical half pure-white; Læliocattleya Goldflake, a well set flower of orange-red colour; and Cattleya Vishna var. Snowflake, large white flower with lemon-yellow shading in the throat; from S. Gratrix, Esq.

Odontoglossum crispum var. Lady Mary Cambridge, large white flower of good substance with occasional spots on the sepals; Odontioda La Papilon, of maroon colour with white edges to segments; Odm. nebulosum xanthotes, the marking of pure dark-yellow; from Mrs. Gratrix.

Odontioda Juno var. Mira, a beautiful variety, flowers of good shape, almost solid pink with red marking on segments; from P. Smith, Esq.

AWARDS OF MERIT.

Lycaste Gratrixiæ (plana × Lawrenceana), Cypripedium bellatulum var. Leviathan, Odontoglossum crispum var. Faustina, and Angulocaste Sanderæ var. suavis; from S. Gratrix, Esq.

Cattleya The Bride; from Mrs. Gratrix.

Miltonia Butterfly var. Radiant; from Messrs. Sanders.

AWARD OF APPRECIATION, FIRST-CLASS.

Odontoglossum Duchess of York; from Mrs. Gratrix.

CULTURAL CERTIFICATES.

Mr. E. W. Thompson for Odontioda Juno var. Mira; Odontoglossum mirum, Haddon House var.; and O. Pescatorei grande.

Mr. J. Howes, for Angulocaste Cooperi magnifica.

GROUPS.

Gold Medals were awarded to S. Gratrix, Esq. for an excellent exhibit of Odontoglossums in variety; and to A. Hanmer, Esq. for a fine exhibit of Odontoglossums and Odontiodas.

A Large Silver Medal was granted to Mrs. Bruce & Miss Wrigley for a fine group containing many varieties and hybrids of Miltonia vexillaria. Silver Medals were awarded to B. J. Beckton, Esq. for an interesting collection of species; to Jas. Whitham, Esq., for a group of Cymbidiums and Cypripediums; and to Messrs. J. Cypher & Son for a varied collection.

Messrs. Keeling & Sons staged several elegant Odontoglossums, the scarce Dendrobium arachnites, and some of the best Masdevallias.

Mr. J. Birchenall exhibited Odontoglossum hybrids; and Mr. E. Shaw a collection of Orchid paintings, to which a Silver Medal was awarded.

May 17th, 1923.

Members of the Committee present: Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Hanmer, Dr. Hartley, J. Howes, A. Keeling, D. McLeod, E. W. Thompson and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum W. E. Bissett, large flower of fine shape, solid chocolate-red colour with white fringe; O. harvengtense, Rosslyn var., large flower of pale-yellow with brown spotting of sepal; Vuylstekeara memoria J. Charlesworth, of deep-maroon colour with a flat lip; and Miltonia Venus var. Fascinator; from H. T. Pitt, Esq.

Brassocattleya Pallas magnifica, large flower of excellent formation, base of lip deep orange; from Mrs. Gratrix.

Brassocattleya Enchantress var. Lady Primrose, a well set flower of sulphur-yellow colour, the base of lip darker; from S. Gratrix, Esq.

Vuylstekeara insignis var. Marigold, of rich marigold-yellow, deepening in colour to the base of the segments; from P. Smith, Esq.

AWARDS OF MERIT.

Odontoglossum Antinous, Odontioda Cardinal, and Cypripedium Enchantress; from H. T. Pitt, Esq.

Cattleya Schrœderæ var. Duchess of York, and Læliocattleya Canhamiana var. Sunray; from S. Gratrix, Esq.

Miltonia Sanderæ var. Painted Lady; from Capt. W. Horridge.

Cattleya intermedia var. Aquinii; from P. Smith, Esq.

AWARDS OF APPRECIATION, FIRST-CLASS.

Odontoglossum Dodeham var. Orion, and O. St. Hilda; from S. Gratrix, Esq. Dendrobium Butterfly; from Dr. R. N. Hartley. Odontoglossum crispum var. Antares; from H. T. Pitt, Esq.

GROUPS.

A Gold Medal was awarded to S. Gratrix, Esq., for a group of Cattleyas and Odontoglossums in great variety. Large Silver Medals were granted to H. T. Pitt, Esq., for a representative collection of species and hybrids, and to Messrs. J. Cypher & Sons for a selection of Masdevallias, excellent Dendrobiums, and fine Cattleyas.

Messrs. Keeling & Sons exhibited Miltonia Sanderæ, a fine Brassavola hybrid, as well as Odm. crispum xanthotes; Mr. D. McLeod staged Odm. crispum var. Imogene and Miltonia vexillaria G. D. Owen; and Mr. J. Birchenall showed Cattleya Mendelii and Odontoglossum seedlings.

THE ORCHID REVIEW.

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NOTES.

HISTOLOGY OF CERTAIN ORCHIDS.—The *Bulletin of the Torrey Botanical Club*, Jan., 1923, contains an article by Edna L. Smith on "The Histology of certain Orchids with reference to mucilage secretion and crystal formation." It is stated that the subject of mucilage secretion in plants is one which has been discussed from several points of view. The relation of the mucilage to growth, to the prevention of loss of water by transpiration, its possible rôle as reserve food material, its chemical composition, its origin, the processes in connection with its formation; all are questions as to plant slimes which are still disputed. The relation of raphides to cell mucilage is undetermined, although it has been noted that mucilage occurs in cells which bear raphides. The conclusions arrived at by the author are that in the floral organs of Aspasia sp. and Oncidium stipitatum the mucilage must originate in the protoplast, since the cytoplasm and the nucleus lie between it and the cell wall. In these forms mucilage cells were found in the young actively growing regions. This mucilage can hardly have the functions ascribed to that found in Orchid pseudobulbs. In all forms investigated mucilage and raphides were found associated, and neither was seen without the other.

DENDROBIUM MOSCHATUM.—Photographs of this elegant species have been received from G. Lindley Hinde, Esq., Assam, who contributed an interesting note to our last issue (p. 162). This Dendrobium, as well as D. Farmeri, was flowering very freely with him during the month of May, and judging by the many spikes seen in the photographs a fine effect was produced by the large flowers of nankeen-yellow colour, which have the additional charm of being musk-scented. It inhabits the plains of Lower Burmah and Moulmein, and first became known in British gardens about the year 1825. A variety known as Calceolaria has somewhat smaller flowers of bright orange-yellow. Sir Jos. Hooker, however, records (*Fl. Brit. Ind.*, p. 744) this species as follows: "The name D. Calceolaria (1823) is much

the oldest. The examination of a very extensive series of published and unpublished drawings of this plant convinces me that the names quoted above (moschatum, etc.) are all referable to our plant, which is so variable that to attempt a definition of its varieties would be impossible in this work." Warner & Williams, in their *Orchid Album* (t. 165), give a coloured plate of D. moschatum cupreum, the flowers in this case being of a coppery yellow. This particular plant was a large imported mass that had been attached to a piece of flat board suspended in the stove house.

ORCHIDS FROM CENTRAL AMERICA AND THE PHILIPPINE ISLANDS.

IN further study of the flora of Central America and the Philippine Islands, Prof. Oakes Ames has found that certain Orchids appear to deserve recognition as new species or to require nomenclatorial attention. Descriptions of these, prepared from herbarium specimens, are now published as part No. 5 of *Schedulæ Orchidianæ*, together with six analytical figures.

Masdevallia linearifolia is a new species closely allied to M. simula, but clearly distinguished from it by the strongly caudate sepals, and by differences in the structure of the labellum and column. The illustration of Masdevallia Livingstoneana has been prepared to exhibit the range of variation that characterizes the flowers of this species. It is stated that "unfortunately there are perplexing speculations as to what constitutes the actual type of M. Livingstoneana, because there were two importations of the species from which Reichenbach might have obtained the material on which he relied for amplification of the original description. Mr. F. Sander informed Mr. Rolfe that after the sale of the first importation (the plants having been distributed simply as Masdevallia sp.), Rœzl arrived at the old nursery in George Street, St. Albans, with living specimens and dried flowers. It was at this time that Rœzl suggested the name M. Livingstoneana, in honour of Dr. Livingstone, whose body had just been brought home by Stanley. Reichenbach did not abolish ambiguity as to the material that constitutes the type when he attempted to make atonement for ill-advised attempt to establish a new species with an incomplete description, for in his notes he failed to assure us that the flowers he examined came from specimens collected by Rœzl in Panama. He simply reported that the fresh flowers came from Baden, where they had appeared in the Orchid collection of the Prince Egon von Fürstenberg. In view of the evidence it would seem that the sketch on which Reichenbach wrote the first rough draft of the description which appeared in the 1874 issue of the *Gardeners' Chronicle* is the actual type of Masdevallia Livingstoneana."

HYBRIDS OF LÆLIA CINNABARINA.

IT is a noteworthy fact that hybridists have frequently been compelled to make use of some of the small-flowering species in order to obtain brightness and intensity of colour. In comparatively recent times we have seen how Cochlioda Noezliana has given the fine series of Odontiodas, and how Sophronitis grandiflora has been the means of adding many beautiful hybrids of reddish tints to the warmer-growing section. Similarly, Lælia cinnabarina has given rise to a varied selection of Læliocattleyas that are much represented in present-day collections.

About the year 1900 new hybrids of L. cinnabarina were being recorded with considerable frequency, in fact, between twenty and thirty appeared within a few years. They included such popular plants as L. Coronet (L. cinnabarina × L. harpophylla), L. cinnabrosa (L.c. × L. tenebrosa), Læliocattleya G. S. Ball (L.c. × C. Schrœderæ), Lc. warnhamensis (L.c. × C. Trianæ), Lc. Cappei (L.c. × C. Warscewiczii), Lc. Coronis (L.c. × C. labiata), and Lc. Charlesworthii (L.c. × C. aurea).

The appearance of a startling novelty has always induced other hybridists to repeat the cross, or, at least, to follow up its method of production as closely as existing circumstances have allowed. Consequently we are induced to believe that this fine series of Lælia cinnabarina hybrids, all flowering for the first time one after the other, owes its origin to some particular successful result. If a period of from seven to ten years is allowed for the raising from seed of these plants, we are taken back to the year 1890 in which to look for the model or hybrid that induced so many others of its kind to be thenceforth created. We find this prototype in Lc. Hippolyta (L. cinnabarina × C. Mossiæ), exhibited by Messrs. Veitch at the Royal Horticultural Society, March 25th, 1890, when a First-class Certificate was awarded, the flower combining in a happy manner the characters of the two parental species.

The primary hybrids of L. cinnabarina were soon worked upon for improved results, the ambition being to produce a large flower having the colour of this Lælia species. But the anticipations of those days have never been realised. Further experience has taught us that it is a matter of great difficulty to separate the characters of any particular species in the way one would like. The rich colour of L. cinnabarina is almost invariably associated with the comparatively small size of its flowers.

As examples of the many recorded results in the second generation, we may mention Læliocattleya Ganymede, produced by crossing C. Schrœderæ with L. Latona (cinnabarina × purpurata), and of which an excellent variety was included in the Gold Medal Group of Pantia Ralli, Esq., at the recent Chelsea Show. Further instances can be given in Lc. Elinor, produced by

crossing C. Schrœderæ with Lælia Coronet (cinnabarina × harpophylla), and Lc. Helius, the result of crossing Cattleya Mossiæ with Lc. G. S. Ball (L. cinnabarina × C. Schrœderæ). Lc. Helius was first raised by Messrs. J. & A. McBean, and is the subject of a coloured plate in the *Orchid World* (vol. III, p. 140); while another pleasing example was exhibited by Mr. Harry Dixon at the Chelsea Show. These results seem to show that C. Schrœderæ, on account of its delicate colouring, is particularly adapted for working up a large flower having the attractive cinnabar tinting that is so characteristic of this Lælia species.

In common with most of the long-bulbed species of the genus, Lælia cinnabarina produces seeds that germinate freely in large numbers, hence it has been much used in the past by amateurs. But now one rarely sees a plant of this Lælia, and a flowering example is indeed difficult to obtain, for importations have been few and far between in recent years.

FERTILISATION OF STANHOPEA TIGRINA.

THE large flowers of Stanhopea tigrina are always attractive, and the curiously constructed labellum has been likened to a cage which forms the lowest part of the pendulous inflorescence. In order to ascertain by what exact method fertilisation is effected certain experiments were carried out by Dr. J. C. Willis, M.A., and published as "Contributions to the Natural History of the Flower" (*Journ. Linn. Soc.*, xxx., p. 284). The author states that "the flower possesses a very powerful vanilla-like odour, which gives a headache to a person sitting over it for any time, and renders our British bees almost incapable of walking if they are shut in with the flower for a couple of hours. The cage formed by the column and labellum hangs downward, and is extremely slippery inside and out except in a few spots, viz., the stalk portion of the column, the interior of the bucket (the slipperiness begins at the mouth of the bucket), and the back of the same. It was found by experiments with hive and humble-bees that they were unable to climb up the slippery labellum."

"This fact, taken together with the pendulous position of the flower and the arrangement of the viscid disc, renders it evident that the flower cannot be fertilised by entrance of insects at the mouth of the cage. This suggested that the removal, or insertion into the stigma, of the pollinia was effected by *sliding* down inside the cage. This idea was tested by enclosing the flower in a large glass bell-jar and putting a number of large humble-bees in with it. After vainly buzzing round the glass for some time, these began to visit the flower, and their actions were carefully watched. Sometimes they alighted on the petals and wandered about upon them; but others found their way into the bucket by flying straight through the large openings

between it and the column, which appear as if specially constructed for this purpose. The bucket contains a great number of juicy hairs, which are probably nibbled by bees, as in other Orchids; but our native bees did not seem to understand how to get to work. Presently, therefore, they tried to return by the way they came. They could not, however, fly straight out, as the opening of the bucket itself was too narrow for them to spread their wings. They, therefore, had to crawl out; and as soon as ever they crawled over the edge, they came upon the highly-polished surface, upon which they could get no grip. Sometimes they hung by their hind legs for a time; but usually they slipped down at once, slid down the cage and out at the mouth. It was quite ludicrous to see the way in which the bees 'tobogganed' down inside the cage; they mostly fell upon the table before they realised what had happened."

SEEDS OF THE MARSH ORCHIDS.

AT the meeting of the Linnean Society held at Burlington House, London, June 21st, 1923, Mr. T. A. Dymes spoke upon the Seeds of the Marsh Orchids, with lantern slides, coloured drawings by Mrs. Godfery, and living plants. He stated that the Marsh Orchids fall into two groups: (1) Maculatæ, and (2) Latifoliæ. In the first group belong (*a*) maculata, L. - Fuchsii, Druce; (*b*) ericetorum, Lint. - præcox, Webst.; and (*c*) O'Kellyi, Druce; to the second (*a*) prætermissa, Druce; (*b*) incarnata, L.; (*c*) purpurella, Steph. patr. et fil.

The seeds of these groups are separable by their testal cells. Maculatæ have the testal cells sculptured; the Latifoliæ not. Further distinctions are, in Maculatæ, maculata, L., apex and testa curved and pointed, coils loose; ericetorum, Lint., kernel about one-third larger than in the other two; O'Kellyi, Druce, long straight seed, not much dilated above the kernel; incarnata, L., seed much shorter and broader than the last, mesh and testa smaller; purpurella, Steph., smallest, testa indented above the kernel and tapering, mesh small.

Seeds even from the same plant may vary greatly. There is a form, Orchis majalis, Reich., with uniform seeds. All questions connected with the foregoing forms can only be solved by systematic cultivation. Colonel Godfery gave an account of the occurrence of certain of these forms abroad, especially in the case of those which did not grow associated with allied forms.

ZYGOCOLAX LEOPARDINUS.—This hybrid between *Zygopetalum maxillare* and Colax jugosus first flowered in 1886, when it was described from a plant raised by Seden for Messrs. Veitch.

CATTLEYA PRINCE SHIMADZU VAR. OLYMPUS.

THIS wonderful Cattleya was exhibited by Messrs. Flory & Black at the recent Chelsea Show, when a First-class Certificate was unanimously awarded. Although the reproduced photograph well depicts the grand form of this beautiful hybrid, it conveys no idea of the actual dimensions. The measurement taken across the petals, without in any way spreading them out, proved the flower to be just on seven inches in width, while the texture of all the segments was exceptionally firm. It is the result of crossing C. Hardyana with C. Tityus. The sepals and petals have a bright rose colour, with the mid-rib of the latter a deeper tint ; the labellum has a large ruby crimson area, and a rich yellow disc and side lobes, reminiscent of the Hardyana parent. The fine development of the lip gives the flower a perfect balance.

Cattleya Mossiæ, C. Warscewiczii, C. Mendelii and C. Dowiana aurea are the four species concerned in the making of this hybrid. The first and second were combined in the creation of C. Enid, and the third and fourth in C. Octave Doin. It will thus be seen that in C. Tityus (Enid × Octave Doin) all four species are pleasingly combined. Although C. Prince Shimadzu is the result of crossing C. Tityus with C. Hardyana, no additional species are thereby included, for Hardyana is a cross between Warscewiczii and Dowiana aurea.

This superlative Cattleya was generally acknowledged at Chelsea Show to be the finest yet seen. It is thus a decided triumph for the raisers, who make a speciality of developing this noble and popular genus.

ODONTOGLOSSUM ADELAIDE.—At the recent Chelsea Show an interesting hybrid between O. Lindenii and O. Rolfeæ was staged by Messrs. Cowan & Co. O. Lindenii is a pretty species that is rarely seen in cultivation. It was discovered by Linden in Colombia, as long ago as 1842-3, but did not appear to have flowered in England until October, 1871, when it was seen in Mr. Day's collection at Tottenham. In habit it much resembles O. Edwardii, but the spike carries numerous flowers of lemon-yellow colour. The first occasion on which this species appeared as a parent was in Odontioda ignea (C. Nœzliana × O. Lindenii), raised by Mons. Graire in 1910. The second record was Odm. multiflorum (Edwardii × Lindenii), raised in Sir Jeremiah Colman's collection in 1920. The third of its hybrids is Odm. Adelaide (Lindenii × Rolfeæ), in which the spike carried numerous flowers of yellowish colour, small, but prettily formed and very effective when seen amongst some of the other hybrids that have but a few large flowers on each spike. Hybrid Odontoglossums with yellow flowers are always effective, and add to the brightness of large groups.

CATTLEYA PRINCE SHIMADZU VAR. OLYMPUS.

DR. J. TROYANOWSKY.—Universal sympathy will be felt with Dr. J. Troyanowsky, President of the Moscow Orchid Society, in the sad loss he has recently sustained, for not only has his country house been destroyed by fire, but his valuable collection of Orchids has also perished.

MR. JOHN T. W. UFFMAN.—We learn that Mr. J. T. W. Uffman, formerly Orchid grower to F. W. Hunnewell, Esq., is now in charge of the Orchid collection of L. D. Towle, Esq., of Newton, Mass., U.S.A.

ORCHID CULTURE IN THE UNITED STATES OF AMERICA.

DURING my recent first visit to the United States of America it occurred to me that it might be of interest to readers of the *Orchid Review* if I made a few notes on what is actually taking place in Orchid circles in that up-to-date and extensive country. Being privileged to visit there the principal collections, both amateur and trade, I jotted down some remarks that I hope will not be out of place. Any comparisons I make will, I trust, not be taken as too personal, as my only ambition is to bring growers on both sides of the ocean into closer touch, and also to let English growers know that the cult of these interesting plants has caught on, and is daily growing stronger among our near relations in the States. Having for many years been in close touch with British establishments, I can form a fair comparison of what I have seen, and my opinion is that amateurs on the other side are much more personally interested in what is taking place in England than we are in affairs of their land. This is perhaps due to our insular habits. However, as Orchid growers are comparatively a small family, I hope closer intercourse may result in benefits to all.

On my journey to Boston for the Spring Show I paid my first visit to an American amateur's collection, that of A. N. Cooley, Esq., of Pittsfield, where I was welcomed by Mr. Oliver Lines, the affable grower and my compatriot. He has charge of certainly the choicest collection of Orchids in the States. Mr. Cooley has without doubt the keen eye of a trained expert. The rare and choice plants he has added to his stock caused me astonishment, and their vigour is remarkable. Among the noteworthy plants I saw were Cattleya Clotho var. General Pershing, a splendidly grown plant which each year produces flowers finer than formerly; C. Fabia memoria Lord Roberts, of great size and rich colour, said to be the finest Fabia known; and C. Mossiæ Reineckiana, of the excelsa type, a remarkable flower with the petals spreading over a large area and having a streak of colour on each, the lip being brilliant rose-purple. C. Schrœderæ alba is always a rare plant, many of the varieties bearing this particular distinction having a slight blush tint, but here is to be seen a flower of perfect shape and snowy whiteness, and one, moreover, that is above the average size. One of the most famous of all white Cattleyas is C. Warscewiczii var. Firmin Lambeau, and it is a pleasure to note how freely this grows at Pittsfield. In England there is generally a deficiency of light during the winter months that has a detrimental effect upon the flowering of Cattleya Trianæ. But Orchid growers in the United States are free from this unfavourable condition, so that they flower this species with much finer results. The selected varieties in this collection are numerous, and I place first as being of outstanding merit that known as Grand Monarch.

It was in flower and unquestionably in a much finer state than ever yet seen in England. There are three very fine plants of C. Trianæ var. The Premier, which is too well known for description, while the beautiful variety known as Edgar Knight continues in the unique position it has enjoyed for so many years.

Of Cattleya hybrids I may mention the magnificent variety of C. Olympus (Octave Doin × Warscewiczii), and C. Thebes var. Britannia, which has for its parents Adula and Dowiana, the flower being rich golden orange with an intense purple labellum. In so extensive a collection as this, one is not surprised to see a large number of Læliocattleyas, but the impressive point is that their standard of excellence is unusually high. Lc. Haroldiana var. Bronze King is a well-proportioned flower of rich coloration; Lc. General Maude is a hybrid well-known in England, and represented in Mr. Cooley's collection by three plants of exceptional merit, in fact, it is considered one of the gems in his garden, while Lc. Commander-in-Chief certainly holds high rank, quite in keeping with its appropriate name. Lc. Marshal Foch is represented by a very beautiful variety of the buff-coloured section that is of immense size and excellent formation; Lc. Serbia (C. Enid × St. Gothard) is to be seen in a fine variety called The President that is quite the best of its kind yet raised; and Lc. Mrs. Temple is a well-known hybrid that first appeared in 1909, and represented in this collection by the variety Dreadnought, the flower being unusually massive in design. Of the popular cross known as Lc. St. Gothard, Mr. Cooley possesses the well-known Glebe variety, of an intense glowing colour in the sepals and petals, and with the lip of crimson lined with gold. In Lc. Anaconda there exists a hybrid that bears flowers of rich yellow, except for the purple lip, while in Lc. Othello there is to be seen a unique variety that as regards richness of coloration has not yet been equalled.

The bright light of the United States also has a very beneficial effect upon hybrids of Brassavola Digbyana, and in this collection some remarkable flowering results have been achieved, notably in Brassocattleya Princess Patricia, a flower of immense size and stately nature, and in Bc. Penelope, of perfect formation in all the segments. Others of this class are Bc. Olympus, well justifying its name, Bc. Jupiter, of splendid proportions, and Bc. Oberon, a fine hybrid obtained by crossing Bc. Digbyano-Mossiæ with C. Schrœderæ. Mention must also be made of Bc. Dietrichiana, of immense size and ruby-purple colour, as well as of Bc. Digbyano-Mossiæ var. Queen Alexandra, a really startling variety of extreme beauty and snowy-white. Brassolæliocattleyas are represented by Woton var. King Emperor, as well as by Joan, with flowers having a yellow colour evenly suffused throughout all the segments, and by Joiceyi, this last mentioned bearing a superb flower of orange-yellow colour in the sepals and petals,

and with the labellum of magenta lined with gold. There is still one more exceptionally fine hybrid in this section that must not pass unnoticed; it is Blc. The Baroness, Orchidhurst variety, most beautiful in every way, of canary yellow colour in the sepals and petals, and the labellum widely extended. Of the numerous hybrids that have been raised with Sophronitis grandiflora in their parentage, there are too many to describe in detail, but it is impossible to pass by the exquisite Slc. Prince Hirohito, and Slc. Meuse var. General Nivelle, with a flower of exquisite ruby-red colour.

The Odontoglossums and Odontiodas are grown in a lean-to house possessing a northern aspect. The back wall is covered with ferns and moss, a method which is found to greatly assist in maintaining a suitably moist atmosphere during the hottest period of summer. I had been warned beforehand that Odontoglossums did not succeed in the States, but here I was greatly surprised by seeing them in an excellent condition of vigour. Among the plants I noticed are O. crispum solum, a fine example, O. crispum Leonard Perfect, then making a strong flower spike, and O. crispum Lucianii, in a similar condition. A grand hybrid existed in O. The Czar. but owing to a slight accident it was being carefully nursed. Included in the hybrids of recent production were distinct varieties of O. Thais, and others having the segments handsomely blotched. Odontiodas are perfectly at home, and many were flowering freely at the time of my visit. There were choice varieties of Bradshawiæ, Charlesworthii, Joan, Bryndir, and Thalia, the latter a striking hybrid between Oda. Schrœderi and Odm. Lambeauianum.

Altogether it is a most meritorious collection of plants, and the able grower, Mr. O. Lines, deserves great praise for having ably seconded Mr. Cooley in forming such a wonderful assemblage of Orchids, many of which have taken the highest honours when shown at the various Exhibitions held throughout the States. As Mr. Lines is still a young man, his example to the American growers is an inspiration to persevere for the achievement of greater things. The work of hybridising and raising the seedlings is a matter that is being carried on with considerable success, and as the plants are now beginning to flower this section becomes of increasing interest to Mr. Cooley, who daily shares this pleasure with Mr. Lines. With such an important collection these notes seem all too brief, for many of the plants are worthy of description in much more detail. It is a special pleasure to note that Mr. Lines is a Trustee of the American Orchid Society, and I feel sure his name will hold an important position in the annals of American Orchidology. His last words to me were to the effect that much will be accomplished within the next ten years in raising the standard of Orchids on his side of the Atlantic.

A.G.E.

(To be continued.)

ORCHID COLLECTIONS.

By JULIA A. STUCKEY, Unley Park, S. Australia.

WHILE I admire the skill and patience of the hybridist, and can imagine the pleasure and sense of triumph with which the beautiful flower of a successful cross is regarded by its originator, I am beginning to wonder if our hybrids are not displacing the Orchid species. In a recent list there are Cattleyas, Lælias, Cymbidiums, Cypripediums Dendrobiums, Odontoglossums, a few Oncidiums, one Vanda, and some species in the miscellaneous section, but by far the greater number of the 775 plants are hybrids. In another list from a well-known firm there is but one named Oncidium, though there are thirty-five Odontiodas and hundreds of other hybrids. In the third catalogue the hybrids outnumber the species by scores, and one misses the old names and varieties among a wonderful list of Odontoglossums.

In private collections it is perhaps excusable that one whole house should be devoted to one kind of Orchid, if the owner has the means to gratify his taste, but in public gardens the preservation of the species seems to me imperative. How are the young people to know the intricate variety of form in Orchids if they see only Cattleyas or Odontoglossums? To a grower of Cypripediums, Orchid foliage has one general appearance, and rather limited range of colour; yet the Dendrobium with its vivid leaves, the Aërides with its climbing habit, the Angræcum with its long spurred flowers, the Thunia, Phaius, and Bletia, with their characteristic foliage are well worth the attention of students.

Are we not in danger of forgetting the small, but wonderfully-constructed Orchid in the effort to obtain an Odontoglossum with a different spotting, or a larger flower than someone has already shown? I would like to see Orchids grown by the ordinary citizen as he now cultivates Dahlias, or Phlox, or greenhouse plants, but it can only be the most easily managed species, or the older and less expensive hybrids.

LYCASTE CRUENTA.—The specific name of this plant is derived from the sanguineous blotch at the base of the labellum. It was discovered by Mr. G. Ure Skinner in Guatemala, and sent by him to England in 1841.

PLATYCLINIS GLUMACEA.—This was one of Cuming's discoveries in the Philippine Islands, and was sent by him to Messrs. Loddiges, in whose nursery it flowered for the first time in 1841. The graceful pendulous crowded racemes of flowers appear in March and April, and, although of a homely colour, have a pleasant fragrance, somewhat like that of new-made hay.

NOTES ON THE SEGMENTS OF ORCHID FLOWERS.

(*Continued from page* 177.)

IN our last chapter on the segments of Orchid flowers, consideration was given to the structure of the labellum, and some of the forms it assumes. We may now continue our remarks on this organ, for it possesses many features that are of importance in distinguishing the various genera. The genus Saccolabium derives its name from saccus, a bag, and labium, a lip, in reference to the saccate labellum. An illustration is here given of Saccolabium bellinum, the most generally cultivated species of the genus. The majority of Saccolabiums are natives of British India, and a few are scattered over the Malay Archipelago.

SACCATE LABELLUM OF SACCOLABIUM BELLINUM.

In Cypripediums this sack-like formation of the labellum is seen in a much more developed state, for it takes the form of a slipper-like pouch. A glance into the interior of this pouch will show that its formation compels insects searching for honey-like food to pass out of the flower by one of two passages, and in so doing remove the pollen and carry it to the next flower visited.

In Pterostylis, a South Australian genus whose representatives are commonly known as "greenhoods," the labellum is irritable, so that when touched it flies up against the column. This interesting method of ensuring fertilisation has been well described by Dr. R. S. Rogers, who in his "South Australian Orchids," includes an illustration of Pterostylis curta, and remarks that "If you examine the tongue you will find near the point, where its hinge is attached to the column, a peculiar little semi-circular apparatus something like a watch spring, with a small tuft of hairs at its free end. This is called the appendage. The slightest weight on this tuft when the flower is erect will make the appendage act like a lever and cause the tongue to fly up against the hatchet-shaped wings of the column, where it will remain for a considerable time. It then gets 'tired' and falls down again. Besides the lever action, however, the appendage is also 'sensitive' when it is not 'tired.' The flower has thus as it were two strings to its bow, by either of which it may bring about fertilisation. If even a very small insect visits it when 'tired,' it will imprison the insect as soon as it touches the appendage, and fertilisation will then take place exactly as in the caso of P. vittata. On the other hand, should an insect visit it when 'tired,' there is still a chance that the weight of the visitor may be sufficient

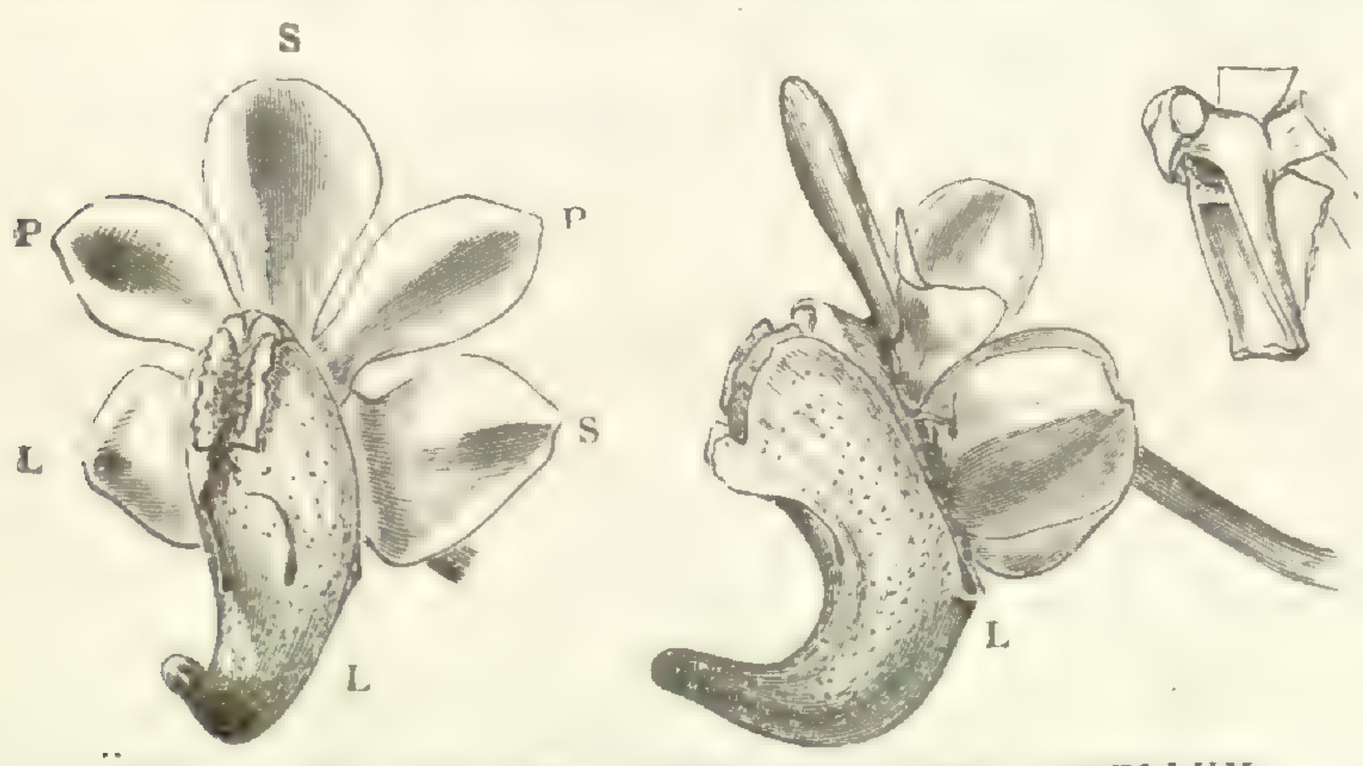
to set in motion the lever-like action and so bring about its imprisonment. The rest of the labellum is not sensitive, and this is of distinct advantage to the plant, because, were this otherwise, the insect would probably be carried up against the wings of the column, and so prevent complete closure of the little fertilising chamber. It could then easily escape without accomplishing the purpose for which the labellum was designed."

Bulbophyllum barbigerum is another example of the wonderful construction frequently witnessed in the labellum. In this native of Sierra Leone, the thread-like structure is so exceedingly delicate that it is set in motion by the slightest movement of the air. Bulbophyllum tremulum is also noted for its trembling lip, while in B. saltatorium the specific name is derived from the dancing-like style of the labellum.

BULBOPHYLLUM BARBIGERUM.

Masdevallia muscosa is another species of considerable interest. When the flower first opens, the tails of the sepals turn back. Then the triangular blade of the lip falls down between the lateral sepals, exposing a yellow ridge on the disc. On touching this ever so lightly, even with a hair, the lip is at once raised, at first slowly, and finally with a snap. An insect alighting on the lip would certainly touch the ridge, and would be lifted up and kept a prisoner for some twenty minutes, when the lip would descend, and be ready for a repetition of the process.

Sometimes the labellum is constructed in the form of a spur, as may be well seen in Aërides suavissimum, in which a resemblance to ram's horns has been noted. This peculiar species was introduced to Kew Gardens as long ago as 1800. In Dendrobium infundibulum the side lobes of the lip bend over the column and have a funnel-like form, and to which the specific name "funnel-shaped" applies. Dendrobium longicornu also derives its name from the shape of the labellum, this being of "long-horn" style. It is a native of the lower Himalayan zone, and flowered in the Horticultural Society's garden at Chiswick in 1829.



AËRIDES SUAVISSIMUM WITH SPUR-LIKE LABELLUM.

SONGS OF THE ORCHIDS.

BULBOPHYLLUM BARBIGERUM.

Each flower is like
  A living gem,
And closely clings
  To a bract-lipp'd stem.
The soft wind comes
To the flowers of love
And lo! they start
  At the breath thereof,
And the soft wind hears
  From lilting lips
The whispered love
Of a fairy heart.

MASDEVALLIA MUSCOSA.

Why is thy lip atremble,
  O blossom strange and rare?
Fear'st thou my heart for wonder,
  Mine eager eyes that stare?

Why is thy lip atremble?
  Dost thy heart fear the crude
Intrusion of my footfall
  On thy mossed solitude?

Or is't the overflowing
  Of joy in thy heart's core?
Or thy strange spirit spelling
  Its secret mystic lore?

O wondrous blossom, thou art
  A precious thing to ken,
Shaming the pomp and power
  Of lucre-scheming men.

'Tis meet my heart should praise thee
  That doth such beauty bear,
God touched thee with His spirit
  And thou art wondrous fair.

J. H. A. HICKS.

POSITION OF PLANTS IN HOUSES.—A matter of considerable importance in the successful cultivation of Orchids is the position the plants occupy. Those that require shade are best accommodated in the end that obtains the least amount of sunshine, if there is such a difference by reason of the surrounding buildings or trees, while plants that delight in a brighter atmosphere should be given the positions most in accordance with such requirements, even suspending them near the glass, but not so close as to get unduly hot, or the foliage may get damaged. Plants with fleshy leaves, such as Brassavola Digbyana, can withstand, and indeed require, much more light than those having thin and delicately formed leaves.

CYPRIPEDIUM VIKING.

THIS elegant Cypripedium was exhibited at the Royal Horticultural Society, November 29th, 1921, by Lieut.-Col. Sir George Holford, K.C.V.O., in whose celebrated collection at Westonbirt, Tetbury, Glos., it was raised by Mr. H. G. Alexander. The parents are Buchanianum (Druryi × Spicerianum) and illustre (Lathamianum × nitens). C. Lathamianum is the result of crossing Spicerianum with villosum and nitens is a hybrid between insigne and villosum. Thus this unusually

CYPRIPEDIUM VIKING.

distinct Cypripedium is composed of four species: insigne, villosum, Spicerianum and Druryi. The strong influence of villosum is seen in the breadth of the petals and their glossy nature, Spicerianum is responsible for the extensive white area of the dorsal sepal, as well as its median-purple-claret coloration, while Druryi imparts to the whole flower a wax-like nature and adds a yellowish tinge to the petals. In the majority of Cypripedium hybrids the side margins of the dorsal sepal are reflexed, but in C. Viking they are incurved.

ORCHIDS AT TUNBRIDGE WELLS SHOW.

NINE years have elapsed since a Flower Show was held at Tunbridge Wells. Judging by the concourse of visitors, the re-inauguration held on July 3rd and 4th was a success, and likely to be renewed annually. Orchids were well represented, and though outnumbered by the Carnations and Sweet Peas, evoked much admiration from sight-seers.

E. R. Ashton, Esq., of Broadlands, Camden Park, Tunbridge Wells, was the only amateur exhibitor on this occasion. He was deservedly given a first prize for a well-staged group of selected plants, which, by the schedule stipulation, was not allowed to occupy more than 4ft. x 3ft. Included in it was a splendidly-grown example of Promenea citrina, some 15 inches in diameter and profusely flowered, its dwarf habit and the clear yellow of the flowers rendering it quite conspicuous. Other noteworthy plants were Odontoglossum Cobret, a well coloured flower of fine shape; Cattleya Gaskelliana var. Queen of the Earth, a distinct form, not truly albino, but so near as to be classed among the white forms, the slight coloration and markings enhancing the purity of the white ground; Læliocattleya Canhamiana var. Rex; Lc. Phœbe; and Lc. Golden Wren var. aurora, the latter a most attractive hybrid with golden sepals and petals slightly tinged with bronze, the lip bordered with crimson and having a clear yellow throat. Cattleya Hildegarde carried an inflorescence of three grand blooms with snow white sepals and petals and a lip margined with white, contrasting with C. Harold, Fowler's variety, but having larger flowers. A well-flowered plant of Bulbophyllum barbigerum was in a prominent position, as also was Cattleya F. W. Wigan, an old hybrid, but still holding its own as regards colour.

In the class for six specimen Orchids, Mr. Ashton was again the only exhibitor, but he well deserved the prize with Anguloa Clowesii, Lc. Dominiana, a particularly highly coloured form, Cattleya Gaskelliana alba with two spikes, Lc. Teucra with five flowers, Lc. Martinettii, and Odontoglossum Antrim (Thais × eximium), a very handsome hybrid with two spikes of substantial blossoms, of dark claret-red colour evenly marbled with white.

In the non-competitive classes, Messrs. Stuart Low & Co. were awarded a Silver Medal for Roses and Orchids, among the latter being Phalænopsis Lueddemanniana. Odontoglossum hastilabium, Lælia tenebrosa, Cattleya gigas, Oncidium Lanceanum, Cypripedium bellatulum, and various Odontiodas.

Messrs. Armstrong & Brown were granted a Large Gold Medal for an extensive and well staged group, composed largely of finely flowered Odontiodas and Odontoglossums, interspaced with three examples of the

charming Platyclinis filiformis—the golden chain Orchid—also Miltonias, Læliocattleyas, Dendrobium Parishii, Cypripedium Curtisii, and its variety Sanderæ, Bulbophyllum Godseffianum, and Oncidium Kramerianum.

A Silver-gilt Medal was awarded Messrs. Sanders for a small group rich in variety. A plant of Stanhopea tigrina, with its curiously constructed and strongly fragrant flowers, and another of Bulbophyllum macrobulbon with an inflorescence of four luridly coloured, peculiar smelling, and strangely shaped blooms, drew many exclamations from the visitors. Odontiodas, Læliocattleyas and Miltonias were well shown. Other interesting plants noted were Cypripedium Godefroyæ leucochilum, Dendrobium atro-violaceum, D. triflorum, Spathoglottis Fortunei, Odontoglossum Schlieperianum, Lycaste aromatica, Cypripedium Gowerianum, Bulbophyllum Lobbii Colossus and the interesting Masdevallia muscosa. Begonia Rex in variety were used in the place of ferns and added to the colour effect.

Staged in a corner of Messrs. Wallace's group of herbaceous plants, were some well-grown examples of Orchis foliosa, their finely developed flowers forming a charming piece of colour, and proving that some of the European Orchids are well worthy of cultivation. E.C.

LÆLIOCATTLEYA CANHAMIANA.—Thirty-eight years have passed since the time when Lc. Canhamiana showed its first flowers. It was raised by Messrs. Veitch and named after Chas. Canham, one of their Orchid foremen at Chelsea. The record of the parentage was apparently lost, but the statement that it probably resulted from the crossing of L. purpurata with C. Mossiæ has since been proved to be correct. At the comparatively early date when this hybrid appeared, the cultural treatment then in use did not produce such rapid results as are witnessed to-day, and it is a matter of interest to learn that Lc. Canhamiana flowered for the first time when thirteen years old. Lælia purpurata is a tall growing plant that possesses a robust constitution, and it is probably on this account that it appears so often as a parent in the early-day hybrids. There is little doubt that other species were also utilised, but as the art of seed-raising was then in its infancy, very few of these crosses reached maturity and being recorded. Notwithstanding the multitude of hybrids that have been recorded in all sections of the Cattleya and Lælia genera, Lc. Canhamiana is still popular, and certainly merits a place in every collection. At the recent Chelsea Show there were several beautiful varieties in the Gold Medal group of Pantia Ralli, Esq., Ashtead Park, Surrey. These plants stood erect in all their dignity, and appeared like the grand-parents, as indeed they were, of the immense family of younger generations staged around them.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

SINCE my July calendar was written, a great change has taken place in the climatic conditions, and very little fire heat has been needed during the day time in either division. In the East Indian house the hot-water pipes have been just luke-warm during the night in order to promote a genial atmosphere. The temperature at night in this house should be kept as near to 70° as possible, and the bottom ventilators should be left partly open whenever the weather conditions permit. A general growing atmosphere should be maintained at all times. In order to achieve this object it will be necessary to devote considerable time and attention to judicious watering, shading, ventilation and the general damping-down in each house. At this period cleanliness is equally important, and, as little repotting will be required, all spare time should be devoted to cleansing the plants, pots, and the general surroundings. Cattleyas, Lælias and their hybrids should be overhauled, the leaves and pseudo-bulbs sponged and any scale insects detected on the rhizomes removed by the use of an approved insecticide, applied with a moderately stiff brush, taking care not to injure the dormant eyes; much damage may easily be done in this way by an inexperienced operator, and which may not become apparent until later, when the buds are lost and the rhizomes turn black and decay. Where insects are not present the plants should be sponged with a weak solution of soft soap dissolved in tepid rain water. Occasional fumigations of the houses should be carried out as a preventive measure. Periodical sprayings overhead with a solution of quassia extract at the rate of half a pint to five gallons of tepid rain water, will in most case keep insects in check. The sprayings should be done on fine afternoons when evaporation is likely to be quick so that harm is not caused by the quassia water remaining too long in any partly developed growths. The above treatment applies to all Orchids.

At this particular season a large number of young shoots are in various stages of development; support should be given to any that are likely to bend over by being loosely tied to small, neat stakes, which may be removed after the growths have attained their proper size and strength.

Many plants of the deciduous and semi-deciduous Dendrobiums will be completing their growths, and when they are fully developed they may be removed to a somewhat cooler and drier atmosphere, where they will receive the benefit of extra sunlight and air, in order to consolidate the newly made growths, and to bring about a thorough season of rest. Before removing the plants from their growing quarters it should first be ascertained whether the young roots proceeding from the base of the new

bulbs are grown sufficiently into the compost to escape injury by exposure. Where possible, it is advisible to select a position in the same house where more air and light can be admitted and less moisture afforded them atmospherically. This partial removal may be carried out as soon as the leaf at the extremity of the bulb is completed. Great care should be taken that plants which have completed their growth never get too dry at the roots, or receive any check that will cause them to finish too suddenly, as this frequently excites them afresh, instead of the buds at the base remaining dormant until after the flowering season is over. With a week or two of this treatment the young roots will have got well into the compost or around the sides of the pots, when they may be afforded cooler and drier conditions and less shading from bright sunshine ; they should be watered just often enough to keep the roots in a healthy condition, and to prevent undue shrivelling of the pseudo-bulbs. The new bulbs may be tied to neat stakes or they may be allowed to assume their natural pendant habit. Dendrobium Wardianum in particular blooms more freely, and its flowers are shown to better advantage, when the pseudo-bulbs are permitted to droop naturally. Other species of Dendrobiums and their numerous hybrids should be treated according to their various stages of development. Plenty of heat and moisture should be afforded growing plants. Aerial growths sometimes push forth from the pseudo-bulbs, these should be taken off, and, if it is desired to increase the stock, may either be potted singly in small pots, or placed several together in larger receptacles. Cuttings that were inserted as advised in a previous calendar, as they develop roots from the new growths, should be dealt with in a similar manner. After being potted they should be placed in a shady position in the house until they are rooted in the compost, when they should receive similar treatment to the established examples.

CŒLOGYNE.—Plants of Cœlogyne cristata are making rapid growth, and well established specimens will need copious supplies of water at the roots whenever the compost shows signs of dryness. An occasional watering with a weak solution of liquid cow manure will also be beneficial. Plants which have been repotted recently should be watered rather sparingly until the new roots have become established in the compost, and, during the whole of the first season after potting, should be afforded only clear water. The surroundings of the plants should never be permitted to become dry. These conditions should be maintained until the pseudo-bulbs are matured and the flower scapes are developing, when the supply of water should be gradually lessened. As plants of Cœlogyne pandurata and the hybrid C Burfordensis pass out of flower, they should be given attention at the roots, specimens that have outgrown their receptacles may have fresh rooting materials afforded them as soon as new roots are observed to be pushing

from the base of the partly developed pseudo-bulbs. These plants have a rambling nature, and are difficult to keep in a limited space. When repotting, it will be found necessary to remove some of the old back pseudo-bulbs. Long teak wood baskets form the most suitable receptacles, and coarse osmunda-fibre and some sphagnum-moss as a rooting medium.

PLEIONES.—The various members of this genus will now be completing their season's growth, and should be afforded more light and air, and given sufficient water at the roots to keep the compost moist, and the bulbs plump, until the foliage becomes ripe and falls off. When this occurs, and until the flower buds appear, water will be needed in very limited quantities, after which the supply should be increased until the flower buds are fully developed.

CALANTHE.—The deciduous Calanthes are in full growth and will now have filled their pots with roots. From now onwards until the leaves begin to decay they should be afforded copious supplies of water, with an occasional application of weak liquid cow manure and soot.

MILTONIA VEXILLARIA, M. BLEUANA, AND THEIR HYBRIDS, that produce flowers early in the season, will have commenced to grow afresh, and some of them may need repotting, but before this is done it is important that the plants should be closely examined for the presence of small yellow thrips. These insects secrete themselves low down in the axils of the leaves, and if they are not destroyed at once the plants will suffer serious injury, and the new leaves will become permanently disfigured. When yellow thrips are found to be present flower of sulphur dusted into the axils of the leaves by means of a camel's hair brush, when the foliage is quite dry, will have the effect of driving the pest nearer to the point of the shoots. The leaves of the plant and young growths should then be immersed in a solution of quassia extract and tepid rain water. After dipping the plants the foliage should be rinsed with clean water. These Miltonias require rather a shallow compost as their numerous fibrous roots prefer to ramble just under the surface. The receptable should be well drained, as during the growing season they need a copious supply of water at the roots, but it is important that it should pass freely through the compost. In repotting keep the base of the young growths about on a level with the rim of the pot, press the materials with moderate firmness around and between the roots. Until the new shoots begin to root freely, water should be afforded very sparingly, merely sprinkling the surface just sufficiently to keep the sphagnum-moss green. Stage the plants well up to the glass in a light airy position, in an intermediate temperature. They will be benefited by a light spraying overhead at least twice daily during bright weather. Attention should be occasionally given to all blinds used for shading, for if laths become broken or the canvas torn some damage to the plants may result.

ODONTOGLOSSUM WARNHAMENSE.

IN the accompanying illustration of Odontoglossum warnhamense the characters of the two specific parents are clearly visible. This hybrid is the result of crossing O. Hallii with O. Pescatorei, and was first raised in the collection of C. J. Lucas, Esq., Warnham Court, Sussex, where it flowered in 1905. The segments are ivory-white, the sepals blotched with chocolate-brown, the petals spotted with similar colour, while the labellum is white, as so often happens with hybrids of O. Pescatorei. The spiny

ODONTOGLOSSUM WARNHAMENSE.

crest at the base of the labellum is derived from O. Hallii. Although large, and possessing a decorative habit, more especially so when the plant is well cultivated, for then the spikes carry many flowers, this hybrid forms a useful addition to the Cool-house section. Odontoglossums are easily cultivated, and require a cool and moist atmosphere in the summer with a minimum of 45-50 degrees in winter. The variety of hybrids is now so great that a continuous succession of bloom may be obtained throughout the whole year, and if Odontiodas be included the colours cover a very wide range.

MASDEVALLIA DAVISII

YELLOW Orchids are so frequently admired that it is not surprising to find amateurs selecting a few additional ones for their collections. A species that may appeal to them is Masdevallia Davisii. It was discovered in 1873 by Mr. Davis, on the Eastern Cordillera of Peru, near Cuzco, and at an elevation of about 11,000 feet. The leaves are 6-8 inches long, thick and leathery, the flower spikes longer than the leaves, and bearing but a single flower. Measured across the lateral sepals, the flowers are 1½-2 inches broad, and they vary in colour from rich orange-yellow to light primrose.

In its native habitat this species grows in a light soil generally consisting of loam and moss, in which there is frequently a certain amount of decayed vegetable matter, hence it will be seen that a light open compost is necessary for its well-being when under artificial cultivation.

M. Davisii belongs to the cool-growing section of the genus, in fact, it can be grown at a much lower temperature than most of the Odontoglossums. However, there is no need to attempt its cultivation in an unreasonably cold house. It will yield many flowers in season if given a shady position in a moist house. The early autumn is a favourable time for repotting Masdevallias. All large specimens are apt to get thin in the centre, and it is then advisable to carefully pull them to pieces, re-arranging the little tufts of leafy pieces so that they make neat plants. Whenever placing these together always make sure that a layer of compost is put between them so that the roots may have ample opportunity of obtaining their supply of food material. On all fine days the foliage should be lightly sprayed, both in the morning and evening. On other occasions the atmosphere should be kept moist by damping down the floor and the staging. Whenever the atmosphere is allowed to become dry for any prolonged period the foliage assumes a parched appearance, and it is then that red-spider and thrips make their attacks. Masdevallias delight in a moist situation, but it should be remembered that they are not bog plants, and on that account the compost should never get into a sodden condition, or the roots will soon perish. It is, of course, to be expected that some of the old leaves will decay, but if any of the newly-formed ones turn yellow and drop off it is certain that something is wrong with the treatment adopted. Very often an over-supply of water during the dull winter months will bring about this condition.

LYCASTE FULVESCENS.—This elegant species was discovered by Linden in 1842 in Colombia at about 6,000 feet elevation. Three years later it flowered in the collection of the Rev. John Clowes, of Manchester, an amateur whose name is commemorated in Anguloa Clowesii.

AN AMATEUR'S EXPERIENCE.

By JOSEPHINE R. WALKER.

IT was winter when last I wrote concerning our Orchids. We have built a small cool house to accomodate the Odontoglossums and allied plants during the summer months, at present there are no means of heating it, so if hot-water pipes are not put in before next winter the plants will have to be returned to their old quarters.

We had some lovely Dendrobiums in flower during the spring time; they included Pierardii, crystallinum and lituiflorum var. Freemanii, this latter having shorter stems than in the type, but the flowers are more richly coloured. D. amœnum is a sweet scented and delightful species that has done very well with us; we have four plants potted together, and the colour ranges from deep amethyst to the lightest mauve. D. fimbriatum and ochreatum have also given several racemes of flowers; I should like to cross these two yellows, for I am told it has seldom been tried. D. Jamesianum has flowered exceedingly well, with nine large blooms on the same bulb, it lasted weeks in perfection and was a real joy to us. The bulb made here was considerably larger than any of those produced in its native home.

We have received from India about 70 Dendrobiums and Vandas. The plants of D. Jamesianum include some fine examples, while the Vandas are in good condition and are a very welcome addition, bringing our number to twenty-eight representatives of this genus. Our former method of cultivating these plants on blocks of wood was not satisfactory, so they have all been placed in pots and are now more than happy. Among the imported plants are five odd-looking ones with tiny bulbs and long single leaves resembling those of Cypripediums, but more pointed and as firm as green leather.

Our Cattleyas are coming on as never before, owing I am sure to the extra heat during the winter. We lost a few of the seedlings, but as we have several of each cross this was of no consequence. Our collection of all kinds consists of about 500 plants, and their names range from A to *Z* with Ada to *Zygopetalum*.

EPIDENDRUM ORGANENSE.—This species is a native of the Organ Mountains, Brazil, whence it was introduced, among Sophronitis grandiflora, by Messrs. Sanders, with whom it first flowered in July, 1891. It is allied to E. calamarium, Lindl., but is dwarfer in habit, and has dull yellow sepals and petals, the former much marbled and streaked with purple-brown behind, and the lip whitish with nine purple radiating lines round the crest. It was originally described in the *Kew Bulletin*, 1898, p. 194, but does not appear to be in cultivation at the present time.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Cattleya Nerissa	Schrœderæ × Tityus	Charlesworth.
Læliocattleya Murillo	Lc. Rubens × C. Empress Frederick ...	Cowan.
Odontioda Iris	Oda. Brewii × Odm. Dusky Monarch ...	Charlesworth.
Odontioda Vesuvius	Oda. Cooksoniæ × Odm. Aglaon	Charlesworth.
Odontoglossum amabelicity	amabile × Felicity	Charlesworth.
Odontoglossum Antrim	Thais × eximium	E. R. Ashton.
Odontoglossum Ernest Bristow ...	Lambardeanum × Uro-Skinneri	Armstrong & Brown.
Odontoglossum Purple Gem ...	percultum × President Poincaré	McBean.
Odontoglossum Regium	Lilian × St. James	Charlesworth.
Vuylstekeara Nysa	M. Bleuana × Oda. Royal Gem	Charlesworth.
Vuylstekeara Zena	M. Hyeana × Oda. Joan	Charlesworth.

ANGRÆCUM CAUDATUM.—To Messrs. Loddiges, of Hackney, is due the credit of introducing this interesting species from Sierra Leone. It first flowered with them about 1835, and during the period 1840-60 was cultivated by most of the principal amateurs of that period. In recent years it has been rarely seen, and on that account it is pleasing to note that a fine example has been in flower this summer in the collection of B. J. Beckton, Esq., Irlams-o'th'-Height, Manchester. The pale brown spur of each flower extends to eight inches in length, and when several flowers are produced on a spike the effect is strange indeed. The sexual apparatus is also of interest, for the rostellum is prolonged into an awl-shaped beak. Regarding the long spurs, Lindley wrote: "For what wise purposes these extraordinary appendages may have been destined by Nature we may well be unable to imagine. It would seem that they must be added to the list of objects which, to our confined apprehension, appear merely intended to exhibit the endless diversity of power of the Creator."

CATTLEYAS NOT FLOWERING.—A correspondent who complains of his Cattleyas not flowering may find the cause due to insufficient ripening of the bulbs. Immature seedlings are, of course, not expected to flower, but when the plants have attained their full size it is necessary to slightly alter the treatment. After the season's growth is completed more ventilation should be given, or, if this is not possible without affecting the other occupants of the house, a position near one of the ventilators should be selected, taking care that the plants are in no direct current of cool air. Less shade will also be required, but in this matter the change should be gradual so that no ill effects are produced. Slightly less water will be required at the roots, and the atmosphere need not be kept so damp as when growth is vigorous. It is perhaps hardly necessary to point out that some Cattleyas do not flower until after several months rest.

CYPRIPEDIUM JUNO.

WE have on former occasions remarked that there are many primary hybrids worthy of cultivation, and although in Cypripedium hybrids of this description the flowers may not be quite so large as those of more recent production, there are certain points in them that appeal to the students of specific characters. Cypripedium Juno is an excellent example of a primary hybrid, being the result of crossing the two species callosum

CYPRIPEDIUM JUNO.

and Fairrieanum. It was raised by Mr. D. O. Drewett, and although only three seedlings from this particular pod survived, one flowered in the short period of two years and eleven months from the time of fertilisation. The influence of C. Fairrrieanum is strongly seen in the prettily formed drooping petals, while C. callosum is responsible for the well-developed dorsal sepal, which has a delicate rose-purple suffusion and vertical lines of dark crimson purple.

CULTURE OF BRITISH ORCHIDS.

THERE is always a certain amount of pleasure to be obtained from hunting for British Orchids and cultivating them in a private garden. When seen growing wild their requirements seem so simple that it looks like one of the easiest things to dig them up and re-plant them without any harm to their constitution. But the slightest difference in soil or atmospheric conditions is frequently sufficient to prevent the plants' future progress as one would desire. Mr. A. D. Webster, in his *British Orchids*, states that "although the majority of British Orchids are found in a somewhat stiff soil, still, in my experience of them, when brought under cultivation, a fair admixture of sand is highly beneficial to most species; indeed I make it a rule when planting to surround the tuberous or other roots with a handful of rough grit or sand, which not only to a great extent prevents decay, but materially assists in the formation of roots. This precaution is all the more necessary when planting imported Orchids, the roots of which have become damaged in transit or through carelessness in lifting. With a little care Orchids may be transplanted from their native wilds at any period of their growth even when in full flower; indeed, the latter time is preferable, as the strongest and healthiest plants can always be chosen, and usually any peculiarity of foliage or flowers is retained under cultivation." Many European Orchids can be successfully cultivated in unheated garden frames, and excellent results have been achieved by amateurs who possess a greenhouse that is just kept above freezing point during severe winter weather.

VENTILATION OF ORCHID HOUSES.—Coming, as nearly all Orchids do, from hilly and mountainous countries, fresh air is vital to them, and should be freely admitted on all possible occasions, particularly in the cool and intermediate houses. In the stove or East India house, so called from the class of Orchids usually grown in it, with its higher temperature, though quite as beneficial to the plants, air cannot be so freely admitted or harm will result from the lowered temperature. Ventilators in the top of the house can only be opened at the most for a short time each day, and even then not sufficiently wide to allow the atmosphere to become too dry, air being chiefly admitted by the bottom ventilators. Air may be left on the bottom ventilators during the summer both day and night, and also, but to a less extent, in the winter. When top air is given, discretion must always be used, and the outdoor temperature studied or too much moisture escapes from the house, causing a dry, arid atmosphere in the place of a moist, genial one. This applies to all Orchid Houses.—*Sanders' Orchid Guide.*

ROYAL HORTICULTURAL SOCIETY.

June 26th, 1923.

MEMBERS of the Orchid Committee present:—Sir William Lawrence, Bart. (in the Chair), Messrs. Jas. O'Brien (hon. sec.), Fred. K. Sander, J. E. Shill, Pantia Ralli, T. Armstrong, A. McBean, H. T. Pitt, Gurney Wilson, C. H. Curtis, A. Dye, and the Hon. H. D. McLaren.

FIRST-CLASS CERTIFICATES.

Læliocattleya Mrs. Willoughby Pemberton, The Dell variety (L c Baroness Emma × Lc. eximia); from Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill). A remarkably fine hybrid with a spike of three flowers, each measuring eight and a half inches across. The sepals and petals light rosy mauve, the well-developed labellum ruby-purple and with a bright golden zone near the throat portion.

Odontoglossum Orosius magnificum (Solon × Maillardianum); from Messrs. J. & A. McBean. A handsome plant bearing a spike of 14 large flowers of reddish chocolate colour, and having a pretty sheen on the front of the segments. The elongated labellum white at the apex, ruby-purple on the basal half, and with a spiny crest of yellowish colour.

AWARDS OF MERIT.

Odontoglossum Ernest Bristow (Lambardeanum × Uro-Skinneri); from Messrs. Armstrong & Brown. A very effective hybrid, in which the characters of the latter parent predominate. The spike bore eight flowers of medium size, the sepals and petals claret colour, the broad labellum rose-tinted, densely spotted with rose-purple, and having a pretty line of rose markings round the edge.

Cattleya Hentschelii, Rosslyn variety (Warscewiczii × Dupreana); from H. T. Pitt, Esq., Stamford Hill (gr. Mr. Thurgood). A handsome flower of large size, and with the segments of a richer tint than usually seen in Cattleya hybrids. The sepals and petals mauve-purple, the wide labellum ruby-purple and the disc yellow.

CULTURAL COMMENDATION.

To Mr. J. E. Shill, gr. to Baron Bruno Schröder, for a fine example of Læliocattleya Mrs. Willoughby Pemberton. To Mr. Thurgood, gr. to H. T. Pitt, Esq., for Miltonia Phalænopsis, an excellent example with 23 fully developed flowers, the grass-like foliage amongst the flowers adding much to the general effect.

OTHER EXHIBITS.

H. T. Pitt, Esq., was awarded a Silver Flora Medal for a group of more than ordinary interest, for it contained several species and hybrids that are not generally cultivated. Along the back were fine plants of Thunias Bensonæ, Marshalliana and Veitchiana, and in front three specimens of

Dendrochilum filiforme, the best bearing 43 elegant pendulous spikes of golden colour. Cattleyas included Mossiæ Reineckiana, now somewhat scarce, and Cypripediums were well represented in Enchantress, light greenish, Mary Beatrice, very dark, and the curious glaucophyllum. Masdevallia Schlimii was in fine state, as also were several Miltonias of the vexillaria section. Oncidium leucochilum carried a spike of many flowers, the white lip of this species showing prominently.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), showed Odontoglossum Cordoba var. Rubicon (eximium × Doris), with a spike of 14 flowers, blotched with claret colour and margined with rose. Also Odontioda Alcantara var. Prince of Orange, with a spike of 6 orange-red flowers.

Dr. R. N. Hartley, Pemberton, Nr. Wigan, exhibited Miltonia A. C. Burrage, a beautiful hybrid of unrecorded parentage, the spike bearing 7 large flowers flushed and veined with rose, the lip having a crimson mask with blackish centre.

July 10th, 1923.

Members of the Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Fred. K. Sander, Pantia Ralli, S. W. Flory, H. T. Pitt, Gurney Wilson, H. G. Alexander, A. Dye, and the Hon. Henry D. McLaren.

AWARD OF MERIT.

Vuylstekeara insignis picta (Miltonia Bleuana × Odontioda Charlesworthii) ; from Messrs. Charlesworth & Co. A very much finer variety than the original one flowered by Mons. Lambeau in 1914. In the variety picta the spike carried five flowers of medium size, the sepals and petals rather narrow, but heavily stained with blood-red colour, the expansive labellum prettily tinged with varying shades of rose.

OTHER EXHIBITS.

Messrs. Stuart Low & Co. were awarded a Silver Banksian Medal for a small though interesting group, containing Epidendrum Brassavolæ with a couple of many-flowered spikes, a nice piece of Brassia verrucosa, Cattleya Schilleriana, now seldom seen, the beautiful Cattleya gigas in variety, including that known as rochellensis, Oncidium Papilio, and Lælia tenebrosa "Walton Grange variety," with a spike of four well-developed flowers. The Odontoglossums included Carpathus, elegantly marked, Rolfeæ, with a branched spike of neat flowers, and hastilabium. Dendrobium Deari and Bulbophyllum Lobbii were also much appreciated.

Messrs. Charlesworth & Co. staged a beautiful variety of Odontoglossum crispum bearing 10 flowers with the segments prettily crisped at the margins, Odontioda Gwendoline, of crimson-scarlet colour, and a large

form of Læliocattleya Momus. Odontioda Dora, of rose tint, and Odna. Thais were a couple of interesting hybrids, while Læliocattleya Appam carried a spike of four flowers in which the sepals and petals were bright golden-yellow and the labellum ruby crimson.

Messrs. Cowan & Co. exhibited Læliocattleya Murillo (Lc. Rubens × C. Empress Frederick), a handsome result in which the segments were unusually well coloured. This plant has not reached its full development, so finer results will doubtless be seen.

Messrs. Sanders staged a fine example of Stanhopea tigrina, with three immense flowers that strongly perfumed the surrounding atmosphere. Other noteworthy plants shown by this firm were the rare Odontoglossum Schlieperianum with yellow flowers, several distinct varieties of Cypripedium Godefroyæ, a fine variety of Cattleya Thurgoodiana and Miltonia Lambeauiana.

GONGORA MACULATA.—Following the description of this species by Lindley in the *Botanical Register t.* 1616, we read that "Many a strange figure has been met with among Orchideous plants, and numerous are the animal forms which botanists have fancied they could recognise among their singular flowers. Some are said to bear little men and women swinging below their canopy of petals; others have appeared to carry the likeness of lizards, frogs, and other reptiles, crouching among their leaves; while some have been compared to Oberons and Titanias hanging by their tiny arms from the bells, where they have concealed themselves. To what the flower of the plant now figured can be likened, we profess not to know, unless to some of the fantastic animals of heraldry; a griffin segreant, as they term it, would do as well as any other for a comparison. This most curious species was sent us by Richard Harrison, Esq., from his garden at Liverpool; it was originally introduced from Demerara, in 1832, by Mr. Thomas Moss, of Otterspool. It flowered in the hothouse in May; its bunches of flowers were two feet and a half long, and hung down most gracefully from the pot in which the plant was suspended. A few years ago the genus Gongora was so little known, that some doubts were even entertained of its existence."

REPAIRS OF HEATING APPARATUS.—Amateurs should take the present favourable opportunity of having any necessary repairs done to the heating apparatus. In the middle of winter there is a greater likelihood of the boiler leaking, or a crack appearing in one of the pipes, and repairs are then much more difficult to accomplish. There is also the additional risk of the temperature remaining at a low level, with consequent injury to the plants.

MANCHESTER ORCHID SOCIETY.

June 7th, 1923.

MEMBERS of the Committee present :—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Evans, W. Giles, Dr. R. N. Hartley, J. Howes, A. Keeling, D. McLeod, E. W. Thompson, J. Witham, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum crispum Mirimar, a fine large flower with heavy blotch on lip; O. crispum Apple Blossom, a large flat flower of perfect shape and beautifully tinted with rose; Odontioda Murillo, flowers of perfect shape and richly coloured; Cypripedium Fletcherianum var. Antinea, large flower, sepals and petals pale yellew, spotted with burnt carmine; from S. Gratrix, Esq.

Odontoglossum Radiant (Alexandra × Dora), a pretty variety, the round flower of rose-purple, spotted with deeper purple, and the large lip white; Blc. Jupiter var. Mrs. Hanmer very fine flower, one of the largest yet seen, sepals and petals slightly flushed, lip beautifully frilled, front lobe cerise-purple; from A. Hanmer, Esq.

Odontioda Duchess of York, one of the finest varieties yet seen in the North of England; Miltonia Lady Veitch, a very pretty variety, the lip bearing a richly coloured mask; from H. T. Pitt, Esq.

Cypripedium Goultenianum albens (callosum Sanderæ × Curtisii Sanderæ), fine flower, emerald green, pouch yellowish green; from Messrs. A. J. Keeling & Sons.

AWARDS OF MERIT.

Odontoglossum crispum Annette; O. amabile St. André; O. eximium St. Alban; Læliocattleya Surprise; from S. Gratrix, Esq.

Cypripedium Marian; Odontioda Chanticler, Orchidhurst var.; Odontonia Gratrixiæ (Odontonia Magali Sander × Odm. Rio Tinto); from Mrs. Gratrix.

Odontoglossum promerens var. Princess Mary; Odm. Penelope Rosslyn var.; from H. T. Pitt, Esq.

Odontioda Marina var. rubra; from H. T. Pitt, Esq.

CULTURAL CERTIFICATE, FIRST-CLASS.

Mr. J. Howes, for Blc. Jupiter var. Lady Mary Cambridge, and Cattleya Tityus var. Royalist.

GROUPS.

S. Gratrix, Esq., was awarded a Gold Medal for a group of Odontoglossums in great variety; and A. Hanmer, Esq., received a Large Silver-gilt Medal for an exhibit of Odontoglossums and Odontiodas.

Messrs. A. J. Keeling & Sons staged some interesting Cypripedium hybrids, as well as the rare Vanda cristata. Mr. D. McLeod showed Miltonia vexillaria G. D. Owen and a fine Odontoglossum hybrid.

ANNUAL MEETING.

At the Annual Meeting of the Manchester Orchid Society, held June 21st, the following prizes were presented to successful competitors:— J. J. Bolton's Gold Medal for Cypripediums to S. Gratrix, Esq. (gr. Mr. J. Howes); Silver-gilt Medal to A. Hanmer, Esq. (gr. Mr. W. Giles); Botanic Society of Manchester's Silver-gilt Medal to Mrs. Bruce and Miss Wrigley; Silver Medal to S. Gratrix, Esq.; Dr. R. N. Hartley's prizes for culture, in connection with the above medals: 1st to Mr. A. Burns, 2nd to Mr. J. Howes, 3rd to Mr. W. A. Stewart.

Charlesworth's Objet d'Art for new awards, Cypher's Gold Medal for arrangement of plants, Evans' Silver Trophy for Odontoglossums, A. Hanmer's Silver Trophy for most points, and Hassall's Silver Trophy for Cattleyas and hybrids, were all won by S. Gratrix, Esq.

S. Gratrix's Silver Cup for Odontiodas to A. Hanmer, Esq. (gr. Mr. G. Giles); Keeling's Gold Medal for Botanical species to B. J. Beckton, Esq. (gr. Mr. H. A. Stewart); Stuart Low's trophy for small amateurs to J. Whitham, Esq. (gr. Mr. E. Greaves); McBean's trophy for Cymbidiums to the Rev. J. Crombleholme (gr. Mr. A. Coningsby); and P. Smith's prizes for groups to gardeners: 1st, Mr. J. Howes; 2nd, Mr. W. Giles; 3rd, Mr. A. Burns.

June 21st, 1923.

Members of the Committee present:—A. Hanmer (in the Chair), Messrs. R. Ashworth, B. J. Beckton, J. Birchenall, A. Burns, D. A. Cowan, A. Coningsby, A. T. Cussons, A. G. Ellwood, W. Giles, Dr. Hartley, J. Howes, J. Jackson, A. Keeling, J. Lupton, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham, H. Arthur (Secretary), and A. McBean (visitor).

FIRST-CLASS CERTIFICATES.

Odontoglossum Doreen var. Dreadnought, a magnificent variety with large flowers of perfect shape and heavily blotched; Odontioda Vesuvius, brilliantly coloured; from S. Gratrix, Esq.

Cattleya Hardyano-Warneri var. The King, large flowers richly coloured, lip very dark; from A. Hanmer, Esq.

Odontioda Flamingo var. Ignea, of brilliant scarlet colour; Odm. eximium xanthotes var Thelma, one of the finest and best coloured forms seen, the segments having large deep-yellow blotches; from Messrs. J. and A. McBean.

AWARDS OF MERIT.

Odontioda Windsor, Oda. Coronation var. Rainbow, and Odm. Helvetia; from Mrs. Gratrix.

Cattleya Isabel Sander var. brugensis and Læliocattleya Gretal var. Papyrus; from S. Gratrix, Esq.

Odontoglossum Eros maculatum and Odm. crispum Nora; from A. Hanmer, Esq.

Oncidium Gardnerianum, Hartley's var.; from Dr. R. N. Hartley.

Odm. Meguelito var. Invincible and Dendrobium melanodiscus var. Kathleen; from Messrs. J. & A. McBean.

AWARDS OF APPRECIATION.

Odm. Damaris, and Odm. St. Elmo, West Point var.; from Mrs. Gratrix.

Odm. crispum var. Princess and Odm. hellemense illustre; from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

Mr. J. Howes, for Oda. Coronation var. Rainbow and Odm. Helvetia; Dr. R. N. Hartley, for Oncidium Garderianum, Hartley's var.; Messrs. J. & A. McBean, for Culture of plants in their group.

GROUPS.

Large Silver Medals were awarded to S. Gratrix, Esq., for a fine group of Odontoglossums in variety, and to Capt. W. Horridge for an excellent exhibit of Miltonias.

A Gold Medal and Special Cultural Commendation were awarded to Messrs. J. & A. McBean for one of the finest groups in the annals of the Society. The Odontoglossums were particularly good, and included a wide selection from white forms and those with yellow spots to the deep rose-purple varieties. Miltonias and choice Cattleyas were also staged in excellent condition.

Messrs. A. J. Keeling & Sons staged Odontoglossum White Queen, O. harvengtense rotundum, the scarce Miltonia Bleuana alba, and the interesting Zygo-colax Amesiana. Messrs. Sanders exhibited Gongora atropurpurea, as well as Odm. citrosum and its album variety.

Col. Sir John Rutherford, Bart., staged Læliocattleya Acis var. beardwoodensis and Cattleya Mossiæ var. Rappartiana.

ODONTOGLOSSUM ANDERSONIANUM.—This is a natural hybrid between crispum and gloriosum, and which turns up in importations of the former. O. Ruckerianum has the same parentage, but as the flowers possess a rose tint it is presumed that they originated from the crossing of crispum roseum with gloriosum. Although not seen so often in present-day collections, both are very decorative.

THE ORCHID REVIEW.

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NOTES.

DIAMOND JUBILEE OF THE FIRST LÆLIOCATTLEYA.—Sixty years ago, September, 1863, the first Læliocattleya was seen in Lc. exoniensis (L. crispa × C. Mossiæ).

ORCHIDS OF PERU.—Under the title, "Die Orchideenfloren der sudamerikanischen Kordillerenstaaten," Dr. R. Schlechter has completed the section devoted to the Orchids of Peru. We hope to review the work at an early date.

LINDLEY MEDAL FOR MR. FARNES.—The Royal Horticultural Society has awarded a Lindley Medal to Mr. S. Farnes, Orchid grower to Pantia Ralli, Esq., Ashtead Park, Surrey, in recognition of the excellent condition of the plants exhibited in Mr. Ralli's superb group at Chelsea Show.

TRADE GROWERS' COLLECTIONS.—As most of the trade growers are continually exhibiting interesting species, as well as novelties in the hybrid section, it is believed that a series of short articles dealing with the principal features of their establishments will prove of interest to our readers. The present issue contains an account of Messrs. Flory & Black's establishment at Slough.

LYCASTE TRICOLOR.—At the meeting of the Manchester Orchid Society on July 19th, Mrs. Bruce and Miss Wrigley exhibited Lycaste tricolor albens, when a Cultural Certificate was awarded to their gardener, Mr. A. Burns. This interesting Central American species was originally introduced from Guatemala by Warscewicz, in 1894. The flowers measure about 1½ inches long, the sepals are light brownish-green, and the petals and lip white dotted with purple, the spots being larger and darker on the lower half of the lip. The specific name refers to the three colours usually present in typical forms, and the variety albens presumably has flowers of lighter tints.

MR. H. H. SMITH.—We are pleased to be able to state that Mr. H. Harwood Smith, of Haywards Heath, has made a good recovery from his recent serious illness. After a few weeks' holiday on the south coast, it is hoped that he will be strong enough to resume his former business activities and attendance at the R.H.S. meetings. Mr. Smith has not yet been able to personally acknowledge the many letters of sympathy and enquiry that have been received; in the meantime he desires us to state how deeply grateful he feels to all who have so kindly thought of him.

R.H.S. AUTUMN SHOWS.—The Royal Horticultural Society's Great Autumn Meeting will be held at Holland Park Hall on October 2nd, 3rd, and 4th. The special Autumn Orchid Show will be held at the R.H.S. Hall, Vincent Square, Westminster, on October 30th and 31st, when two Challenge Cups will be offered for competition. The first, valued at 30 guineas, is open to all amateurs, and the second, valued at 20 guineas, is open only to such amateurs as employ not more than three assistants, including a head gardener, in their Orchid houses. Groups entered for the smaller cup must not exceed 60 square feet in area.

CHYSIS BRACTESCENS.—The resting season of this species begins as soon as the current season's bulbs are fully developed, which is towards the end of summer. The plant must then be placed in a cooler and drier atmosphere, either in the same or another house. The lower temperature and dryness will conduce to the ripening of the bulbs, which is the chief point to consider, bearing in mind that the largest and best ripened bulbs produce the finest spikes of flower. In early spring the plant will again start into active growth, when it should be returned to warmer and moister conditions. The flower spikes are produced from the new bulbs when about six inches long, about the middle of May.

ODONTOGLOSSUM ROSSII.—This elegant little plant is sometimes considered difficult to flower. The reason may be due to the fact that it is often treated like O. crispum, cool and moist all the year round. Being a Mexican plant it should have a resting period corresponding with the dry season of Mexico. During April and May drier conditions should be maintained. From midsummer through the winter until March the plants should be kept moist, always taking care that during the dullest period of winter water is not over-supplied, or the compost will quickly become sour. A light atmosphere, such that usually may be obtained by suspending the plants in the cool house, is essential, and shading must be carefully attended to.

PARAPACTIS EPIPACTOIDES, W. ZIMM.

By Colonel M. J. GODFERY, F.L.S.

IN 1868 Hermann Müller described and figured a Westphalian Epipactis which he identified with *E. viridiflora* Reichb., and pointed out the following unique characters: (1) the upper part of the stigma is turned so far back that it is partly tucked *under the base* of the anther, nearly reaching the back of the column; (2) the anther thus projecting over the stigma, the pollinia are deposited on its upper surface standing upright on their flattened bases; (3) the flower is thus automatically fertilised by its own pollen; (4) there is no shallow cup (clinandrium) on the summit of the column for the reception of the pollinia, as in *E. latifolia*; (5) there is no rostellum, and, therefore, no viscid matter to attach the pollinia to a visiting insect's head.

The curious fact that Reichenbach's description of *E. viridiflora* entirely failed to mention *any* of these really extraordinary characteristics does not appear to have raised any doubt in Müller's mind as to the identity of his plant with *E. viridiflora* Reichb. He evidently thought he was merely giving a more detailed description of an imperfectly known plant. Müller's Westphalian Epipactis had in fact nothing to do with *E. viridiflora* Reichb., but was a plant which had never been previously named or described.

In the Journal of Botany, 1913, p. 344, Messrs. Wheldon and Travis announced the discovery on the sand-dunes of the Lancashire coast of *Helleborine* (*Epipactis*) *viridiflora*, and in J. B., 1918, p. 1, Dr. T. and T. A. Stephenson described and named another form of the same plant from the Isle of Wight. In July, 1918 (J.B., 1919, p. 37) I found a woodland form which appeared to belong to the same species. I was, therefore, keen to see continental specimens of *E. viridiflora* Reichb., and in 1920 went to Thorenc, above Grasse, where Mdlle. Camus told me it grew in plenty. To my surprise I found it showed *none* of the characters of Müller's plant, but that it was identical in the construction of the flower, and the method of cross-pollination with *E. latifolia*, of which it was manifestly only a variety, being indeed so considered by nearly all continental authors. It became quite clear that the British plants had nothing to do with *E. viridiflora* Reichb., their mechanism and method of fertilisation being essentially different from those of *E. latifolia*. At Thorenc, however, I found one small colony of an Epipactis which agreed in every point with Müller's description. I therefore named it *E. Muelleri* (J.B. 1921, p. 101). My only doubt was as to whether it did not constitute a separate genus (l. c. p. 104), as differences in the reproductive organs furnish generic rather than specific characters. Dr. Keller however warned me that E.

Muelleri might be only a form of *E. latifolia* modified for self-fertilisation, citing *Phajus Blumei* as a similar case, whilst Dr. Schlechter quoted Appendicula, and said he could show me cases of similar transformations. They also told me that Herr Zimmerman, a well-known writer on Orchids, was studying the same plant with a view to the creation of a new genus. No literature as to Phajus or Appendicula being then available to me, I retained the plant as an Epipactis.

Herr W. Zimmermann (Mitt. Bad. Landesv. Natkd. Freiburg, N. F. I. [1922] p. 232, and Fedde, Repertorium xviii [1922] p. 283), has now raised *E. Muelleri* Godf. to generic rank under the name *Parapactis epipactoides* W. Zimm.

Forbes states (*Naturalist's wanderings in the Eastern Archipelago* p. 85) that in *Phajus Blumei* fertilisation occurs through the excessive secretion of viscid matter by the stigma finding its way past the tongue-shaped rostellum to the anther and permeating the pollinia. These swell and either "avalanche downwards, sometimes obliterating the rostellum," or whilst remaining in the anther emit pollen-tubes which make their way to the stylary canal. In another form the rostellum is absent and the anther ruptures and rotates forwards, until the four lower pollinia come into contact with the stigma. According to Dr. Schlechter (*Orch. D. Neu-Guinea xli*) in Appendicula there are two forms. In one the foot of the column is reduced, but not enough to destroy the zygomorphic character of the flower. In the other the foot of the column is entirely suppressed, so that the flower appears outwardly to be regular, the lip resembling the petals. In both cases it appears to be a question of pelorism. The flower has reverted to an ancestral form, anterior to the differentiation of the lip. In both forms the formerly erect rostellum, forming a "separating wall" between anther and stigma, has been suppressed, facilitating self-fertilisation through the inundation of the anther by the stigmatic secretion, and the consequent emission of pollen-tubes *in situ*.

Neither case is on all fours with Parapactis. There is no change of position of the stigma, no thrusting of its edge beneath the anther, no direct deposition of the pollinia upon the stigma, and the method of fertilisation is entirely different. The only point in common with Parapactis is the absence of a rostellum. There is no trace of pelorism in the latter. Parapactis does not appear to be a case of an insect-pollinated flower modified for self-fertilization, like *Cephalanthera grandiflora* or *Ophrys apifera*. Apparently it could not be pollinated by insects without structural modification, and there is nothing to show that it ever possessed a rostellum. Still, the hypochile secretes nectar, and it is possible that there is some method of transfer of pollinia which has so far escaped observation.

In July 1922 I found a new station for it at Sallanches, in Savoie. It agreed with the Thorenc plant except that the pollinia were not so squat and conical, but resembled those figured by Herr Zimmermann, which are more like those of *E. latifolia*. The short conical pollinia of the Thorenc plants do not appear to be a constant character.

Herr Zimmermann writes:—Parapactis stands in near relationship to Epipactis and Cephalanthera, which latter is to be regarded as a distinct genus. In my key to the Orchids of Germany, etc. (Berlin 1912), following Schulze's example, I united Cephalanthera with Epipactis. I hold to-day a different view. The architecture of the column and the method of fertilisation are different, as Godfery recently showed in the Fertilisation of Cephalanthera (*Journ. Linn. Soc.* 1922).

BRISTOL SUMMER SHOW.

AT the summer show held recently at Whitehall, Bristol, Dr. Cairns, Devon House, Whitehall, was awarded the first prize in the open class for six specimen Orchids, these included Cypripedium Veitchii, with four well-developed flowers, Odontoglossum crispum, with an excellent spike of bloom, O. Rolfeæ, Odontioda Bradshawiæ and a fine example of Cyp. A. de Lairesse (Curtisii × Rothschildianum). The second prize went to E. W. Bryan, Esq., The Poplars, Beaufort Road, Bristol, his plants included Miltonia Lambeauiana alba, a grand plant of Cattleya Gaskelliana, and a fine variety of Odontioda Bradshawiæ. For three specimen Orchids, F. H. White, Knowle, was first; Dr. Cairns, Whitehall second; and J. Wilkins, Esq., St. Andrews, third.

Messrs. A. J. Keeling & Son were awarded a Gold Medal for a group occupying about 60 square feet and comprising fine specimens of Odontioda Laura, a grand variety of Oda. Lambeauiana, Odontoglossum amabile splendens, Cypripedium Maudiæ magnificum, Cyp. Rossettii, both in excellent condition, Cattleya Faseyana var. Ruby, of rich colour, and C. Warscewiczii var. Whitehall, a showy plant bearing six flowers of excellent formation and colour.

MAXILLARIA VENUSTA.—Originally discovered by Linden in 1842 on the Cordillera of Venezuela in the province of Merida, but not introduced until 1851, when it was re-discovered by Schlim on the eastern Cordillera of Colombia, near Ocana, and sent by him to M. Linden's establishment at Brussels, where it flowered for the first time in Europe in 1854. M. venusta is easily recognised by its long, acuminate, milk-white sepals and petals. It is one of the best known species of the genus.

CALANTHE VESTITA AND ITS ALLIES.

ALTHOUGH Dr. Wallich discovered Calanthe vestita in Tenasserim in 1826, it was not introduced to cultivation until 1848, when Dr. Kane, of Exmouth, sent it to Messrs. Veitch & Sons, of Exeter, from Moulmein. It was exhibited at the Horticultural Society's meeting on November 7th of that year, and appears to have been well received, for a large Silver Medal was awarded. It has a short, ovoid pseudo-bulb, large soft plicate leaves, which die away before the scapes appear, and comparatively large white flowers, in which the lip is four-lobed, yellow at the base in the variety called luteo-oculata, and reddish-purple in the variety rubro-oculata.

C. rosea was discovered in Moulmein by Thos. Lobb, and sent to Messrs. Veitch & Sons, who flowered it at Exeter in December, 1851. Lindley described it as Limatodes rosea, a name under which the plant was known until Bentham proved it to be a true Calanthe, and closely related to C. vestita. It is, however, distinguished by having longer, more slender pseudo-bulbs, which are strongly constricted about the middle, and smaller, rose-coloured flowers, with an entire lip, and a much shorter spur.

C. Turneri is usually considered a variety of C. vestita. It was introduced by Messrs. Veitch through their collector, Thos. Lobb, from Moulmein, about the same time as C. rosea, and named in honour of Mr. J. A. Turner, of Pendlebury, near Manchester. It differs from vestita in having a larger and more slender pseudo-bulb, which is constricted above the middle, as well as yielding somewhat smaller flowers that appear later in the season. The flowers are white, with a red-purple blotch at the base of the lip; in the variety nivalis they are pure white.

C. vestita gigantea was in 1886 figured in the *Orchid Album* (v., t. 211) under the name C. vestita oculata gigantea, and is probably identical with C. vestita igneo-oculata of Reichenbach, 1876. It is said to be a more robust plant than vestita, and to retain its leaves until the flowering period in March or April, after which new growth commences. The flowers are very large, creamy-white, and with a fiery-red blotch at the base. It is a native of Borneo.

C. labrosa was received from southern Burma by Messrs. Veitch & Sons, of Chelsea, in 1878, and in the following year was described as Limatodes labrosa. The pseudo-bulbs are long and narrow, constricted in the middle, the sepals and petals light yellowish brown, tinged with purple inside, and the lip broad, obscurely lobed, light rosy-purple with some small dark spots, and white at the base.

C. vestita Regnieri is a native of Cochin China, and was introduced by M. Regnier, of Paris. Although the pseudo-bulbs closely resemble those of Turneri, and the flowering period is about the same time of the year, the

CALANTHE RUBY VAR. COOKSONIÆ.

A hybrid derived from rosea and vestita. Flowers large and pure white.

individual blooms are smaller, variable in colour, and the lip less deeply lobed, with the two front lobes often united at the base. In the same section as this may be mentioned Williamsii (*Orchid Album*, iii., t. 134), in which the sepals and petals are pencilled with rose; Stevensii, white with a rose-coloured blotch at the base of the lip; and Sanderiana, with flowers that are bright pink throughout.

C. Rubens was discovered by Mr. Curtis in the Langkawi Islands, and

was described in 1890. It is most allied to Regnieri, but has considerably smaller flowers that are produced at about the same period. The colour is dark red, with the lip ruby-red, but some are blush tinted, and others pure white.

TREATMENT OF BACK BULBS OF CATTLEYAS.

THE usual method of increasing the stock of special varieties consists of separating a portion of the plant by dividing the rhizome with a sharp knife. The part so cut off can be left in its original position until new growth is made, or else removed forthwith and placed in a separate pot. Messrs. Flory & Black make a regular practice of maintaining their stock of fine Cattleyas by so dividing them. The separated portions are put in small pots and surrounded with compost in the usual manner, when they are placed in a shady part of the house. Much of the success achieved in quickly obtaining vigorous little plants is due to the method of watering adopted. The newly potted plants that have roots are kept on the dry side for the first few weeks, while those without roots are given more moisture. Paradoxical as this may appear, the method has proved beneficial, for it is based on sound principles. In order that roots may form a close contact with the particles of the compost, minute hair-like bodies are produced, and these seek out the concealed crevices in their search for nutriment. When, in repotting, the compost is removed from the roots, most of these root-hairs are destroyed, and the plant's means of obtaining moisture is correspondingly decreased. Consequently, in potting these back-bulbs it is advisable to keep them on the dry side until the roots re-establish themselves by the formation of new root-hairs, for until this takes place there is but little opportunity for any water in the compost to be utilised, and it is the presence of stagnant water that is one of the main causes of the roots decaying. As soon as the roots recommence activity more water is applied. The back portions of plants that are unfortunately not provided with any roots are rather more difficult to re-establish. There is, in their case, no need to keep the compost on the dry side, and a continual moist state is adopted, for the plant is only able to take in a much smaller and inadequate supply by absorption through the probable process of osmosis. The temperature of the house in which these propagated pieces are treated is not maintained at any higher point than usually prevails in the Cattleya house, consequently the newly made plants start life under normal conditions, and as ventilation is freely given their constitution is strong.

MANCHESTER ORCHID SOCIETY.—The next meetings of this Society will be held on September 6th, 20th, and October 4th.

CIRRHOPETALUM CAMPANULATUM.

OF the many interesting species of the genus Cirrhopetalum, few excel C. campanulatum as regards neatness of habit and prettiness of the inflorescence. The reproduced photograph shows the plant from which the original description was drawn up (*Kew Bull.* 1909, p. 62). This species is a native of the East Coast of Sumatra, and was sent from the Brussels Botanic Garden in 1908, and flowered at Kew in October of that year. As is customary in this genus, the flowers are borne in an umbel, but the ten or eleven pairs of united lateral sepals are so strongly deflexed as to give a campanulate appearance to the inflorescence, and it is from this character

CIRRHOPETALUM CAMPANULATUM.

that the specific name was formed. The individual flowers are rose-pink in colour, with a few minute darker dots and paler margins. The dorsal sepal and petals are yellowish, with dusky brown lines, and all strongly fringed with dark purple hairs. The delicately-balanced labellum is reddish-purple. As soon as the flowers commence to open, a slightly gummy liquid is formed and trickles down the sepals, ultimately falling off in drops. Some of these drops can be seen on the lower inflorescense in the photograph, and it is probable that they have some connection with the fertilisation of the flowers. Cirrhopetalums are neat little plants, and most of them can be successfully cultivated in shallow pans or baskets suspended from the roof of the hot-house or warmest end of the Cattleya house. A moist atmosphere is at all times essential.

THE SEEDS OF THE MARSH ORCHIDS.

By COLONEL M. J. GODFERY, F.L.S.

AT the Linnean Society's meeting of the 21st June an interesting and suggestive exhibit was made by Mr. T. A. Dymes, F.L.S., of lantern-slides of the seeds of the marsh Orchids, together with living specimens and water-colour drawings by Mrs. Godfery, of the species referred to.

He divided the marsh Orchids into two groups, viz.:—

MACULATÆ.—Cells of testa sculptured, *i.e.*, with spiral coils in the cells of the transparent loose covering of the seed.

(1) *Orchis maculata* L. Apex of testa curved and pointed, coils loose.

(2) *O. elodes* Griseb (*O. ericetorum* Linton). Kernel 30 per cent. larger than in other forms, coils loose, less developed.

(3) *O. O'Kellyi* Druce. Testa long, narrow, almost straight, coils close and pronounced.

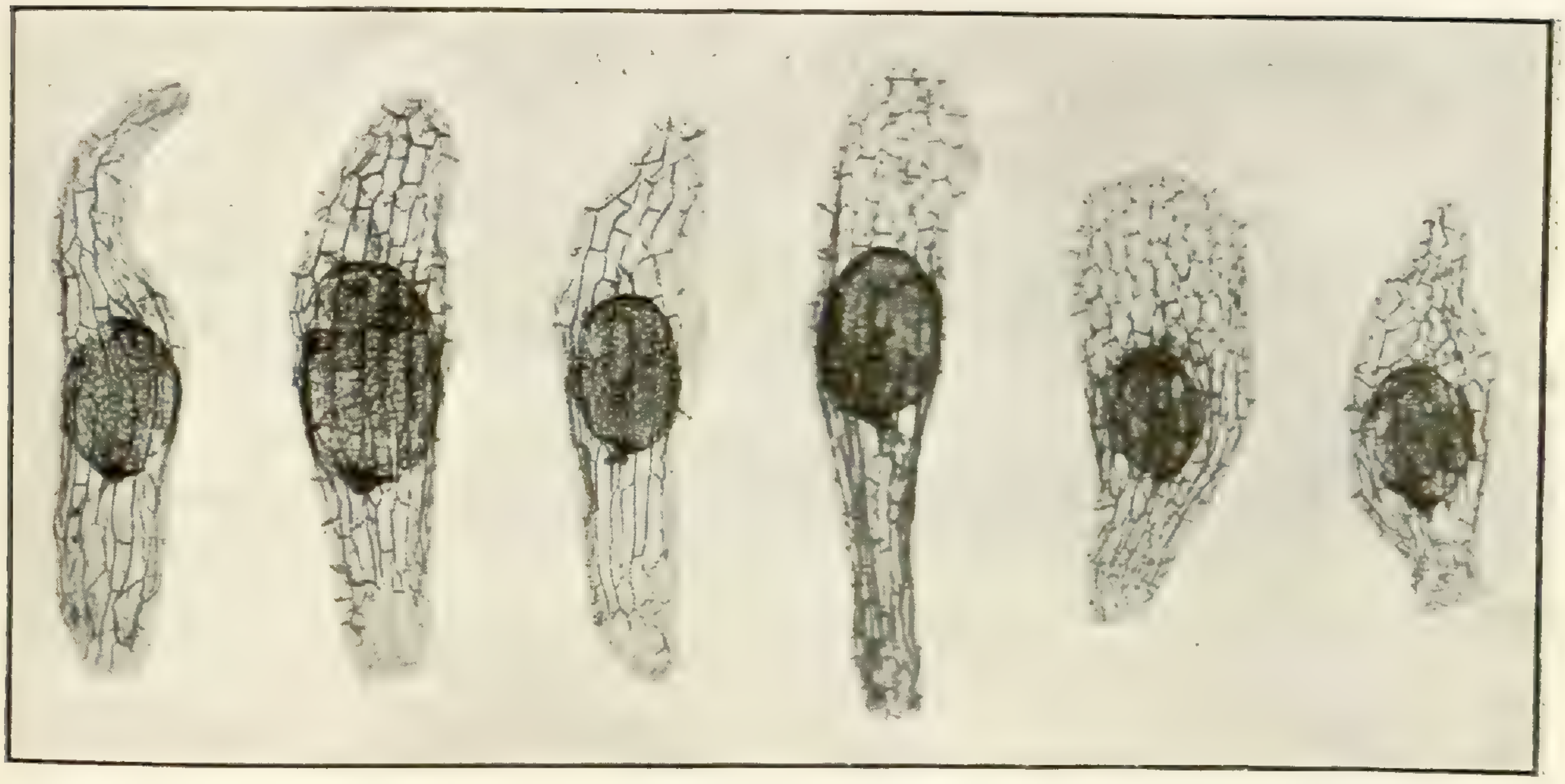
LATIFOLIÆ.—(4) *O. prætermissa* Druce. Testa long, straight, not dilated above, kernel nearly as broad as testa.

(5) *O. incarnata* L. Testa shorter and broader, much dilated above, mesh small, a clear margin of testal cells on each side of embryo.

(6) *O. purpurella* Steph. p. and f. Testa dusky, indented above, tapering, mesh small.

The text-figures will show the differences indicated above. Mr. Dymes is to be congratulated on having opened up a practically new line of research, for although the younger Reichenbach gave drawings of the seeds of certain Orchids he did not enter into close comparisons and measurements. Perhaps Incarnatæ would have been a better name for Mr. Dymes' second group, as *Orchis latifolia* has coils in the testa, as pointed out by Reichenbach fil. (*Icones*, xiii., 58), and would apparently come under Maculatæ as far as the seeds are concerned. Mr. Dymes doubted the existence of *O. latifolia* in Britain, suggesting that marsh Orchids with spotted leaves are hybrids with *O. maculata* L. as one parent, as seeds from British specimens varied in different, or even in the same plant. He referred to a Continental form, *O. majalis* Rchb., whose seeds appear to be uniform, and suggested it might be an established hybrid species, or the parent of both groups. Reichenbach's son was under no illusion as to the validity of his father's newly-created species *O. majalis*, which he only mentions as a synonym of typical *O. latifolia* L., putting it under his *Latifoliæ veræ* a.a. *genuina*. As to modern continental opinion Dr. Keller writes that Dr. Schlechter and himself regard *O. majalis* Rchb. as synonymous with *O. latifolia* L.

I have observed *O. latifolia* L. for three consecutive seasons at Vence, above Nice. Here it is evidently a pure species, *incarnata*, *prætermissa*



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SEEDS OF THE MARSH ORCHIDS.

MACULATÆ: 1. *maculata* L.; 2. *elodes* Griseb (*ericetorum* Linton); 3. *O'Kellyi* Druce.
LATIFOLIÆ: 4. *prætermissa* Druce; 5. *incarnata* L.; 6. *purpurella* Steph. p and f.

and all forms of *maculata* are entirely absent from the district. It nearly always has spotted leaves—careful search the first year I found it only revealed two specimens with unspotted leaves—the spots transversely oval, ringed, or small and circular, dark or faint, dense or sparse, sometimes confined to the tips of the leaves, and the flowers varying from dark violet-red to pale lilac. Similar variations occur in the spotted British marsh Orchids. Later I saw *O. latifolia* in great quantity at Thorenc, above Grasse, 3,600 feet above the sea. Here *O. maculata* L. was present, and beautiful hybrids occurred between the two species, but the great majority of *O. latifolia* was of pure blood. Next year I saw *latifolia* in abundance in the plains around Chambéry, in Savoie. It appeared to be identical with the Vence plant. Curiously enough *O. maculata* was absent from the plains, though frequent (about 2,000 feet up) on the mountains on either side, where the hybrid *O. Braunii* also occurred. One sometimes sees it suggested that the British spotted-leaved marsh Orchids are *O. Braunii*—hybrids between *O. prætermissa* and *maculata*, but this is incorrect, *O. Braunii* being the spotted-leaved *O. latifolia* L. crossed with *maculata*. Again at Chamonix, near the foot of the Col de Balme, I saw troops of *latifolia* on the marshy slopes. Here the flowers were brilliant dark violet-red, the colours, as with so many Alpine flowers, being particularly bright. The plants were not distinguishable, except in depth of colour, from those at Vence. Mdlle. Camus informed me that in the environs of Paris, where *latifolia* is rather

widely spread, often without admixture, she has always seen it with spotted leaves. Mr. St. Quintin visited a marsh of 20 acres at Champéry, in Switzerland, where *latifolia* grew in thousands, all with purple flowers and spotted leaves. To Continental botanists, to whom *O. latifolia* is familiar as an abundant and widely spread plant of Central, Southern and Northern Europe, rarely found with unspotted leaves, the suggestion that *O. latifolia* L. had unspotted leaves, and that their spotted-leaved plant is a hybrid between two species (which are not infrequently both unknown in the regions in which it grows) must appear incredible. The specimen from Lewes exhibited by Mr. Dymes, and others found by me at Winchester at the end of June, where they were nearly as numerous as *O. prætermissa* appear to me to be identical with *O. latifolia* of Vence. No doubt hybrids occur not infrequently in Britain between *prætermissa* and *maculata*, and have been mistaken for *O. latifolia*. Mr. Dymes tells me that he is not now so sure that all British *latifolia* are hybrids, and does not feel certain that he has examined seeds of the plant identified as true *latifolia* in Britain.

Whether, in the case of critical species, the differences between the seeds can be regarded as unanswerable evidence of specific differentiation, is open to doubt. The immense amount of patient labour and microscopical and technical skill involved in the comparison of the seeds leave considerable loopholes for error. The differences between the seeds of *maculata*, *elodes* (*ericetorum*) and *O'Kellyi*, which are so nearly allied as to be regarded by most modern botanists as varieties of the same species, appear to be as great as those between *incarnata*, *prætermissa* and *purpurella*. The evidence afforded by the seeds appears to be rather confirmatory than of itself conclusive.

Mr. Dymes' suggestion that *O. latifolia* L. might be the parent of both his groups is perhaps nearer the truth than the supposition that it is an established hybrid species. I have seen abroad extremely rare isolated specimens amidst colonies of *latifolia* which were very like *prætermissa* in appearance, and which would, perhaps, if found in England, have been classed with *prætermissa* rather than with *latifolia*. It is quite possible that both these species are descended from a not very remote common ancestor.

GOMESA SCANDENS.—This species differs from others of the genus in its elongated stem and climbing habit. It was introduced from Brazil by M. Binot, in 1902, and flowered at Kew in July of the following year. Owing to the elongation of the stems the pseudo-bulbs are distant from each other from two to four inches, the intervening portion being clothed with imbricating distichous bracts. Wide, shallow pans, or teak-wood rafts, are preferable to pots for its cultivation.

ORCHIDS AT SLOUGH.

SOME forty years have passed since Messrs. Veitch augmented their Chelsea establishment by constructing at Slough a range of glass-houses entirely for the raising and cultivating of hybrid Orchids. The specialist put in charge was Seden, and it was he who raised in these houses some of the earliest of the Brassavola crosses, as well as the batch of Læliocattleya exoniensis that proved the parentage of this first of Lælio-cattleyas, the Diamond Jubilee of which takes places this month and is described in another page of this issue. The present occasion is therefore a fitting one for describing a few features of this establishment, which, since October, 1913, when the firm of Messrs. Veitch was discontinued, has been carried on by Messrs. Flory & Black.

These houses are filled with an immense stock of hybrids, many of them descendants of the fine strains produced in former years by Dominy and Seden for Messrs. Veitch, while other plants are the result of crossing the best varieties of later-day successes. Consequently this establishment is regarded as a place where some of the most renowned Cattleyas have originated, and where at the present time the finest are being produced. Although a general glance round the houses proves with what care the plants have been raised, there is one particular point worthy of note, for scale insects are entirely absent. From the very earliest days of the seedlings' existence great care is taken that they never come in contact with plants acquired from other sources. The result of this treatment is shown by plants of flowering size still having the whitish skin-like covering on all their bulbs, for there has never been any need to remove it. This means that no time is wasted in cleansing the plants by frequent washing, and the bulbs are less liable to be affected by chill when protected by their natural skin. Another feature of this freedom from scale is the fact that all the "eyes" or buds at the base of the bulbs remain perfectly healthy, so that when back-bulbs of about seven years of age are severed every piece quickly commences new growth. A large number of fine varieties of hybrids are by this means being propagated, and it is interesting to note that in many instances some of these back pieces are producing two and three new growths simultaneously, while in others that have lost their leaves an almost similar state of vigour is visible. Of course, in an establishment of this size, there are always plants that have been acquired from outside sources, but Messrs. Flory & Black take every precaution to ensure that they are never mixed or even placed alongside seedlings of their own raising.

In another spacious house there is an excellent batch of Cattleya Hardyana alba, a descriptive term that here implies pure white sepals and

petals, but a coloured lip. It was from this lot that the superb variety called President Wilson appeared in 1918 and received a First-class Certificate at the R.H.S. Cattleya Our Prince (aurea × King George) was only named last year, but several most promising varieties have already flowered and proved that some distinct yellow-flowering hybrids will be added to the long list of aurea crosses. Another praiseworthy batch is to be seen in Cattleya Tagus (Rhoda × King George), many of which are now in sheath, and also in Cattleya Eleanore, a beautiful hybrid produced by crossing Hardyana with Warscewiczii var. F. M. Beyrodt. Mention may also be made here of C. Gravesiana alba, in this case produced by crossing Mossiæ Wageneri with Lueddemannjana var. Empress, both parents being pure-white. Another example of how some of the earlier crosses are being re-made can be seen in Lc. Colmaniana, with the Rosita variety of Dowiana and Lc. callistoglossa as parents.

After passing through the corridor, the visitor enters a large house having one side entirely filled with hybrids of Cattleya Tityus (Enid × Octave Doin). As evidence of the value of Tityus it is only necessary to mention the following well-known results: Cattleya Heatherwood (Mossiæ × Tityus), G. P. Walker (Mendelii × Tityus), Dr. M. Lacroze (Octave Doin × Tityus), and Prince Shimadzu (Hardyana × Tityus), all of which have been raised in recent years by Messrs. Flory & Black.

The Læliocattleyas embrace a remarkable series that extends from the historic Lc. Dominiana to present-day hybrids of grand form and brilliant colour. There are handsome varieties of Lc. Carmencita (luminosa aurea × Dowiana aurea), and of Lc. Jaquenetta (Lc. Lustre × C. Empress Frederick), also of Lc. Radiant, the latter cream coloured with a dark purple lip. Others in flower included C. Sibyl, as well as several in a batch that have been raised from yellow-flowering parents. A long span-roofed house is devoted to a number of interesting Brassavola hybrids, such as C. Trianæ × Bc. Cliftonii magnifica, in which the second use of Trianæ is expected to yield a flower of fine formation. There are numerous Brassavola hybrids containing white parents, and results already achieved lead one to anticipate finer things being seen in the near future. Among the albino varieties of species are Cattleya labiata alba var. Mrs. E. Ashworth, and Lælia pumila alba, the latter raised from seed. An elegant albino hybrid exists in Cattleya Helen Langley, the segments of this being particularly thick in texture. At the time these notes were made the greater part of one house was occupied with a large batch of selected plants that were being prepared for shipment to America.

Cypripediums are cultivated along the side staging of a lean-to house, as well as in shady areas of other houses. They embrace a large number of unflowered plants, and many superb varieties, several of the latter having

obtained First-class Certificates when exhibited at the Manchester Orchid Society. Dendrobiums include several superb plants of D. Thwaitesiæ, Veitch's var., as well as most of the popular hybrids. Cirrhopetalum Rothschildianum and Peristeria elata are two elegant species frequently enquired for by amateurs. Large numbers of hybrids with Sophronitis grandiflora have been raised here, and among many of outstanding merit mention may be made of Sc. Santa Fé (C. Rhoda × Sc. Doris), Sc. Prince Shimadzu (Sc. Doris × C. King George) and Slc. William Pitt. Slc. King George (Slc. bletchleyflora × C. King George) received a First-class Certificate, R.H.S., March, 1922.

One of the most interesting features of this establishment is the seed-raising department. The old methods have been entirely replaced by a scientific system that allows a more definite control of the necessary fungus co-operation being maintained. Suitable glass flasks are partially filled with fibrous compost and sterilised, the fungus being added afterwards from stock tubes. After a certain period for the fungus to permeate the compost the seed is sown. The results are indeed startling to behold, for Odontoglossum and Odontioda seed germinate so satisfactorily that in most of the flasks the surface of the compost is almost covered with thousands of minute seedlings. These little plants are subsequently pricked off into other flasks and again into small pots. Miltonia hybrids are raised with equal success by this method, and tentative experiments are being made with the seed of Cymbidiums.

This firm makes a special feature of the production of hybrids from Brassavola Digbyana, in which they have had signal success. Messrs. Flory & Black believe that there is still room for further development in Brassocattleyas, and when one surveys the work that has already been done since the days of the first appearance of the primary hybrids—which were really revolutionary and sensational—one realises the sure and rapid progress that has been made. Twenty years is but a short period in the evolution of Brassocattleyas, for in that period one can breed only three generations, possibly four with extremely quick results. From the point of view of time, the progress has been really phenomenal. The aim here is to produce plants with the fine expanse of the lip of B. Digbyana added to the width of the petals of the finer Cattleyas, as well as to secure flowers of rich colour, the latter a rather difficult problem. Some batches were pointed out in which these desirable results may claim to have been achieved, and many crosses which promise to eclipse them have yet to flower. Bc. Viscount Toda (C. Rhoda × Bc. Ilene), a plant of which received an Award of Merit, R.H.S., last year, was remarkably compact, full in form and substance, as well as having a rich colour. Bc. Prince of Wales (C. Octave Doin × Bc. Ilene) received a First-class Certificate at the R.H.S. Autumn

Show of 1921. This plant had much of the labellum coloration of a fine C. Dowiana, and with full rose petals. Bc. Rosita (C. Dowiana aurea × Bc. Ilene) as raised at Slough may claim to be one of the best of the section, some superlative varieties having been flowered. This latter hybrid has been freely used as a pollen parent, and good offspring are being looked for. It will be noted that C. Dowiana aurea has been twice used in the making of this cross, as Bc. Ilene itself is a hybrid between C. Dowiana aurea and Bc. Mad. Chas. Maron. Bc. Ilene was a fine Veitchian production. It is interesting to note that in an endeavour to get colour of an original hue, intercrossing of the Sophrocattleyas with the Brassocattleyas is being carried out, and a number of such crosses have already flowered and been recorded. Two of these are noteworthy in combining in their constitution the four genera: Brassavola, Sophronitis, Cattleya and Lælia. They are Potinara Gratrixiæ (Sl. Gratrixiæ × Bc. Mrs. J. Leeman) and P. Royal Purple (Blc. Gerald × Sc. westfieldiensis), both of original colouring, but not red, although this was hoped for. Pure-white Brassocattleyas are represented in many combinations, one of the best being Bc. Princess Mary (C. chocoensis alba × Bc. Digbyano-Schrœderæ), a fine example which received a F.C.C. from the Royal Horticultural Society. Bc. Maisie (C. Iris × Bc. Ilene) comes in different shades of yellow, and in this connection several crosses from Blc. The Baroness (Lc. Ophir × Bc. Mrs. J. Leeman) were pointed out as likely to add to this yellow category.

In going through this nursery it is markedly noticeable how few plants are left that have flowered. It was made clear to us that varieties and novelties over a given standard are usually disposed of when they first flower, and others that fail to reach this standard are marked and stood together to eventually be sold for cut flower purposes. In this way the establishment does not become encumbered with mediocre stock. At the same time, the market for cut-flower plants is not being overlooked, and large quantities of Læliocattleyas are produced specifically for this purpose. In these Lælia purpurata exists in some measure as a parent, giving constitution and throwing an inflorescence with a long stem, essential and desirable qualities.

We were impressed by the extra vigour of the Cypripedium seedlings, to which this firm are devoting much attention. Cypripedium lovers are on the increase, and their desire always is to keep adding something better to their collections. The advantages offered by this plant are its amenable qualities as to culture, the dull season in which it flowers, and the long-lasting nature of the blooms. Noteworthy novelties that flowered here last year were Cyp. Nellie Pitt, J. M. Black, Golden Sunset, Senator, Phantasy, Upton Gem, and many others. Among the above were some of the best novelties of the season. A curious point arose in discussing the culture of

these plants, namely that most growers are in the habit of re-potting too early in the season. These plants are not re-potted at Slough until early in March, for it is not until then that root-growth commences. Plants that are re-potted earlier (and the beginning of January is often recommended) stand much danger of losing their roots. Besides, even if the plant does not lose its roots it is more likely to lose than gain by this shift in November, and the new compost will be two months old before it is wanted. A second shift is given to vigorous seedlings in July, and the plants give a ready response when given fresh compost at this season.

Space does not permit of describing the Odontoglossums and Odontiodas, a large number of which are cultivated, as also are Disas and their hybrids. Records of most of the best productions of this firm are preserved in paintings by well-known artists. In concluding these comparatively brief remarks, we should like to state that Messrs. Flory & Black export numerous plants to all parts of the world, and judging by the excellent testimonials received, many of which we have read, their customers are thoroughly satisfied with the plants sent out and the healthy condition in which they arrive.

PERISTERIAS.—The members of this genus are characterised by stout pseudo-bulbs, from the base of which the flower spikes are produced. The leaves are large, broad, and plicate, while the fleshy flowers are almost globular in shape, the column bearing two large fleshy wings. They are natives of Central America, and under cultivation require a fairly light place in the intermediate house. The plants should be potted in fibrous loam, with a little leaf-mould, and some coarse fibre to keep the mixture porous. When growth is active the water supply should be well maintained, but at other times the compost should be allowed to remain somewhat drier. The best known species of the genus is P. elata, commonly called the Dove Orchid.

MAXILLARIA GRACILIS.—Concerning this Brazilian species, Loddiges in 1832 remarked :—"This curious little plant is a native of Brazil; it is very slender in its habit, and does not exceed the height of four inches. With us it flowered in the month of August, in the stove, which is constantly necessary for its preservation. It may sometimes be separated for increase, and should he potted in moss, vegetable earth, and small pieces of broken pots." The plant grows in a neat little tuft, the two-leaved bulbs being less than an inch long. The flowers are light yellow, with the midrib and margins of the sepals reddish, a few purple spots on the lip, and some reddish stripes on the face of the column. It is a miniature species of the M. picta group.

LÆLIOCATTLEYA EXONIENSIS.

ON September 9th, 1863, the first Læliocattleya was seen in flower. On that day Læliocattleya exoniensis was exhibited at the Royal Horticultural Society and awarded a Second-class Certificate. The present month therefore marks the Diamond Jubilee of the first of this well-known section of hybrids. During these sixty years about 1,400 crosses between Lælia and Cattleya have been recorded.

Lc. exoniensis was raised by Dominy at the Exeter Nurseries of Messrs. Veitch & Sons. On leaving Devon in 1864 to accompany Mr. James Veitch to Chelsea, the Exeter Horticultural Society presented Dominy with a piece of plate "in recognition of the value of his experiments in hybridization carried on by him whilst a member of their association." The parents of this hybrid were originally given as C. Mossiæ and L. purpurata, and although some doubt was expressed as to the correctness of the latter parent, it was not until June, 1903, when Seden had raised a fresh batch of this hybrid, that the true parents were proved to be C. Mossiæ and L. crispa.

Coloured plates of Lc. exoniensis appeared in the *Orchid Album*, vol. x., t. 443, and in Warner's *Select Orchidaceous Plants*, ii., t. 36. Accompanying the former plate is a note that "the very finest example which we ever saw of this plant was in the excellent collection brought together by the late Mr. Dawson, of Meadow Bank, N.B., and so ably managed by his gardener, Mr. Anderson. The fine plant had sixty of its gorgeous flowers fully developed at the same time." These names are commemorated in Lælia anceps Dawsoni and Odontoglossum Andersonianum.

It is always a matter of interest to turn up the old records, and we find that at the sale of Lord Londesborough's collection in August, 1880, four plants of L.c. exoniensis realised respectively £63, £54 12s., £44 2s., and £24 3s. These figures induced Mr. Anderson to contribute the following note to *The Garden*: "I observe that among the Orchids sold last week belonging to Lord Londesborough, four plants of this Cattleya realised the extraordinary price of 177 guineas. I happened to see these plants a few days before they were sold, and I must confess they sold well, possibly bringing higher prices than would have been asked by, or given to, the trade in the ordinary way of buying and selling, showing the advantage of competition at auction sales. Looking back, I well remember the late Mr. James Veitch, when he saw some twelve years ago the big plant (by comparison) we had at Meadowbank, exclaiming that he had comparatively thrown this wonderful hybrid of Mr. Dominy's away by letting it out too soon. It is a capital grower, and I took a special interest in it, because I looked upon it then, and I have in no way modified my opinion now, as the most beautiful thing we had in the way of Cattleyas in September and

October. Ours, from a fifteen-guinea piece, grew to be a large-sized plant, and the last year we had it it produced seventy-two flowers. I was so anxious to prolong its season of flower, that I kept it in a Cool house—too cool, as the sequel showed, because it took distemper, got discoloured in the bulbs, and its constitution completely broke down. It was sold at Stevens' at about one-fourth of what it would have brought had it been perfectly healthy. These facts will show what a valuable plant this might have been to Messrs. Veitch had they retained the stock for ten years longer. According to the prices realised last week, such a plant as the one at Meadowbank, which had over twenty breaks and I forget how many break-buds, had it been broken up and kept in health, would have been most valuable. Such competition also shows the growing taste for good Orchids, and the certainty of anyone realising good prices for them if they keep rare and beautiful species, or varieties of species, in good growing order."

ORCHID CULTURE IN THE UNITED STATES OF AMERICA.

ONE of the oldest and best known collections in the United States is undoubtedly that formed by Clement Moore, Esq., of Hackensack, New Jersey. This amateur is well known personally to many Orchid lovers on this side of the Atlantic, and his enquiry as to their well-being proved the ties of friendship he made when visiting England. Mr. Moore is always in close contact with his Orchids, and the history of each and every plant was related from memory when I visited his renowned collection.

The range of glasshouses has been planned with forethought and care, and where the houses are not connected by corridor, a cellar-way has been constructed so that the plants can be moved from one house to another without coming into the open air during the cold weather. Mr. Moore is an enthusiastic raiser of plants from seed. I noticed many thousands in various stages of growth. Some of the earlier crosses have already flowered and been recorded, but of later years many much finer varieties of species and hybrids have been used as parents, and it is from these that greater things are expected. On account of the promising nature of these seedlings keen interest is taken in their progress towards the flowering stage.

This collection has long had a reputation for fine varieties of Cattleya Trianæ, and many plants of this species were pointed out to me as being exceptionally fine. There are grand plants of Trianæ alba, Moore's var., and of the varieties known as Grand Monarch, Edgar Knight, President, Perfecta, Mooreana, as well as some others of even finer merit. Another species largely cultivated is C. Warscewiczii, of which many plants have been selected and purchased when in flower. I noticed a healthy plant of

the variety Firmin Lambeau, now well known on account of its pure-white flowers, also of the variety Rochellensis, and of another, distinguished as variety Clement Moore, that is said to be a giant amongst giants, and of splendid shape and colour.

My attention was drawn to a large batch of Cattleya Schrœderæ in excellent condition. One particular plant was said to yield flowers quite equal, or even a little better, to those of the well-known C. Schrœderæ "The Baron," which, by the way, I may say originated in this collection, and of which a most interesting history is given by Mr. Moore. I saw in flower a specially fine C. Schrœderæ alba, a very large flower of good shape and really pure-white—a true rarity with this species. Near by was a variety having the sepals and petals of rich lavender colour, and the lip as richly coloured as that of C. Trianæ, but the fragrance of C. Schrœderæ proved its true specific classification.

I cannot refrain from mentioning a fine batch of Cattleya Mossiæ, some of them were in flower, but it was still too early in the season for the special ones to be seen. Following these, I saw a healthy lot of Cattleya Percivaliana, one plant being acknowledged as the finest variety yet seen. There is also another one with white sepals and petals and a rich velvety lip. The plants of Cattleya labiata were just recovering from their season's work. This species is treated by the American growers very severely, consequently I was amazed at their continued good health. Although in my travels I noted quite a lot of physical wrecks, I did not see many in this collection. Mr. Moore can boast of a fine collection of white forms of C. labiata, also of such choice varieties as C. labiata Gilmouriæ, C. labiata Harefield Hall, and a few selected varieties that are as yet entirely unknown in England.

Although there are large batches of Cattleya species in this collection, the owner is a connoisseur of the modern school, and a man who realises that Cattleya hybrids also have a claim upon him. He proudly showed me some recently acquired British raised plants of surpassing interest, although on my part I could not help feeling a little grieved that these meritorious plants with their R.H.S. awards should have left the land of their birth. A word in season to our amateurs may be wise: let them realise that American amateurs are quietly but surely taking the present opportunity of adding choice and renowned plants to their respective collections. Such plants should remain here as monuments to the work of the British hybridists. We deplore our art treasures crossing the Atlantic. Must we also part with our choicest floral treasures? This is surely what will take place unless our British amateurs realise its significance.

In closing my report, I must say I am under a great obligation to Mr. Clement Moore for the kindness shown to me and the hospitable

manner in which he received me. My visit will be a lasting memory of a happy afternoon spent with one of the keenest Orchid amateurs of the United States. Mr. Hannington, who has charge of this noted collection is well known in England, and has served a useful apprenticeship to enable him to work in harmony with such an enthusiastic employer. His abilities are very much in evidence by the countless numbers of Cattleya and Læliocattleya seedlings that he has here raised since taking charge. The order and cleanliness of the whole place reflects great credit on his management.

Another collection that is full of interest, and probably the most comprehensive of its kind, is that of Arthur C. Burrage, Esq. He is a great enthusiast, and I was delighted to see with what determination this amateur has set himself to prove that Odontoglossums and Odontiodas can be successfully grown in the United States. In a sunken span-roofed house I saw some 2,000 splendidly grown plants, many of the Odontiodas were in flower with strong branching spikes of brilliant colour. There were also a few good Odontoglossum hybrids, thus proving conclusively that these plants of commercial value with their wealth of showy flowers can be grown if their natural requirements are understood. Every provision is made for their well being, and I was much impressed by the water sprinklers arranged between the glass and the double shading; they are used during the summer months, and from the evidence of the plants themselves this method of cooling the atmosphere is very beneficial. The plants look very happy and compare most favourably in health with those in our English collections.

Cattleyas are grown in abundance, both the species and the hybrids. Many specimens of the former are monuments of high culture, for example, C. Schrœderæ had 130 flowers and buds, a giant plant of Lælia purpurata carried 150 flowers and buds, and there were fine specimens of Cattleya Skinneri, the largest having over 300 flowers and buds. These plants were a special delight to me, as of late years very few fine specimens of Cattleyas have been seen in England.

In order to convey to our readers some idea of the vastness of this collection, I may mention batches of species, such as 1,000 plants of C. Mossiæ, a similar number of C. Schrœderæ, 2,000 of C. Trianæ, 200 C. Lueddemanniana, an equal number of C. Gaskelliana, and also of C. Hardyana, as well as 100 C. Hardyana alba. Of the Brassocattleyas there are over 500, including many fine and up-to-date varieties, one of the best being Bc. Cliftonii magnifica. Brassolæliocattleya The Baroness is greatly prized, for it obtained the Gold Medal of the Massachusetts Horticultural Society. Other noteworthy plants in this section are Cattleya Warscewiczii var. Firmin Lambeau, C. Mossiæ alba, C. Enid alba, C. Lord Rothschild

alba, C. Warneri alba, C. labiata alba, and C. labiata var. Harefield Hall. There are also a number of other good things that space will not allow detailed descriptions.

Phalænopses are splendidly grown in a couple of lean-to houses. They comprise more than 2,000 plants, principally amabilis, Schilleriana, and Stuartiana, some being really fine pieces. There is also the rare P. Veitchiana. I had previously seen some of these plants exhibited at the Boston Spring Show, where they were arranged on massive pillars forming a temporary pergola, and making a very attractive and bold effect, both on the upright pillars and the cross beams. Vandas are represented by 500 plants, many rare varieties being amongst them.

Dendrobiums are also largely grown, and include 100 D. Phalænopsis Schrœderianum. There are also 500 plants of Oncidium varicosum Rogersii, a similar number of O. splendidum, nearly as many of Lycaste Skinneri, and other members of the genus, some 250 Masdevallia plants, many of botanical interest, while the collection of Miltonias totals 120, the numerous varieties including the rare M. Bleuana var. Reine Elizabeth. A whole house is devoted to Cymbidiums, many of which are the newer hybrids, and there is also a huge plant of C. Lowianum var. Baron Schröder.

Much more could be written on this interesting and ever-increasing collection, for in one house alone I saw between three and four thousand Cattleya hybrids as yet unflowered. I leave it to the imagination of the readers what this means to an amateur—at least a fascination growing stronger day by day as the plants approach their flowering size. This collection is housed in 18 span-roofed houses, each 75ft. by 20ft., and approached by a central corridor planted with Cymbidiums and Ferns which seem to agree well with each other.

I was met by Mr. Pocock, the superintendent, who was trained under Mr. W. P. Bound and Mr. J. Collier at Gatton Park, and who has charge of this vast assemblage of more than 25,000 plants. This choice and varied collection has been built up by Mr. Burrage in a very few years. His deep interest and concern for Orchidology is a lasting monument in the United States. As President of the New Orchid Society he is a great pillar of strength to its existence, and with such a leader the cult of the Orchid in the United States is an assured success. Visitors to his collection at Orchidvale, now recognised as the Mecca of Orchid enthusiasts, are sure of a warm welcome, for permission is readily granted to all who are interested.

I am pleased to say that I found Mr. G. I'Anson, so well-known to British Orchidists, quite happy in the land of his adoption. He is still in the employ of Mr. Burrage, and has recently been commissioned by him to visit Europe for business purposes. A.G.E.

(To be continued).

VANDA MISS JOAQUIM.

THIS hybrid between Vanda Hookeriana and V. teres was raised at Singapore by Miss Joaquim, and was originally described in 1893. In June, 1897, it flowered for the first time in England in the collection of the late Sir Trevor Lawrence, at Burford, and received a First-class Certificate

VANDA MISS JOAQUIM.

when exhibited at the Royal Horticultural Society. The plant was between seven and eight feet high, and bore a spike of three expanded flowers and nine buds. It has the general habit of V. teres, the form of the flower taking more after that of V. Hookeriana. Both parents require a consider-

able amount of sunshine to ripen the growth sufficiently for flower buds to be produced, so that under artificial cultivation but little shading is required. It grows well when the staging is covered with a bed of sphagnum moss that is kept constantly moist by frequent syringing, and a fairly high temperature is maintained. Propagation is easily effected by separating some of the pieces of stem having live roots. In colour, the flowers are whitish, prettily stained with rose-violet.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocatleya Maisie	C. Iris × Bc. Ilene	Flory & Black.
Brassocattleya Santiago del Estero ...	Bc. Digbyano-Mendelii × C. Hardyana ...	Dr. Lacroze.
Cattleya Gladiator	Gladys × Dowiana aurea	McBean.
Cattleya Tagus	Rhoda × King George	Flory & Black.
Læliocattleya Biddy	C. Iris × Lc. Wellsiana	C. J. Lucas.
Læliocattleya Lamart	L. Latona × Lc. Martinetii	H. T. Pitt.
Læliocattleya Nanon	Lc. Ivanhoe × C. Dowiana aurea	Cowan.
Læliocattleya Princeps	Lc. Ville de Bruxelles × C. Mendelii ...	Armstrong & Brown.
Miltonia William Pitt	Isabel Sander × Bleuana	H. T. Pitt.
Odontioda cuprea	Oda. Joan × Oda. Charlesworthii ...	Charlesworth.
Odontioda Eclipse	Oda. Madeline × Odm. Alexandrina ...	Pantia Ralli.
Odontioda Eunice	Oda. Joan × Odm. percultum	Charlesworth.
Odontioda J. Eversfield	Coch. miniata × Odm. Prince Albert ...	Lady Aberconway.
Odontioda Mabel	Oda. Bradshawiæ × Odm. Joan	Charlesworth.
Odontioda Rene	Oda. Brewii × O. Prince Albert	Charlesworth.
Odontioda Vanessa	Odm. Louise × Oda. Charlesworthii ...	Charlesworth.
Odontioda Verulam	Oda. Madeline × Odm. majesticum ...	Sanders.
Odontoglossum Sterlina	Lady Veitch × Lambeauianum	H. T. Pitt.
Odontonia David Sander	Odm. Rio Tinto × M. Warscewiczii ...	Sanders.
Phalænopsis Venus	Lindenii × rosea	A. Misumi.
Sophrolæliocattleya Delice	Slc. Hon. Barbara Wilson × C. Trianæ ...	Stuart Low.
Wilsonara tigrina	On. tigrinum × Oda. Charlesworthii ...	Sir J. Rutherford.

GOVENIA DELICIOSA.—This small genus is seldom represented in present-day collections, although G. deliciosa is worthy of attention. It is figured in the *Orchid Album*, t. 210, and is of terrestrial habit, the erect spike bearing six to eight flowers, white, the lip yellow at the base, the front half covered with purplish dots.

PHOLIDOTA IMBRICATA.—The genus Pholidota is allied to Cœlogyne, and the plants require a somewhat similar culture. P. imbricata is the species best known. It is a native of India and Burma, and consequently requires an intermedia temperature. The pseudo-bulbs are stout, oblong, about two inches high, the leaves varying from eight to twelve inches high. The flowers are closely set, yellowish-white, sometimes shaded with green, and generally produced in summer.

CULTURAL NOTES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

ODONTOGLOSSUMS AND ODONTIODAS.—These useful cool growing plants are greatly appreciated by all growers and lovers of Orchids, the species O. crispum and O. Pescatorei being special favourites. Many finely coloured hybrids have been introduced during recent years, mainly through crossing and inter-crossing the above named species with O. Harryanum and Cochlioda Nœzliana, etc. Where a large collection of these plants is cultivated there are at all seasons many plants in various stages of development, and still some in bloom. Plants that flowered early in the year are making new growths, and young roots will be pushing freely from their base. Although individual plants may be re-potted at almost any time of the year, the late summer and early autumn is regarded as the best season for the general overhauling of the plants, and for giving fresh rooting material to those that require it, the moist atmospheric conditions and cooler nights being of great assistance to the re-establishment of the plants after root disturbance. In re-potting, it is essential that the pots be well drained to ensure a free passage of water; overpotting should at all times be avoided. No hard and fast rule can be laid down. Vigorous plants may be afforded larger receptacles than those that have become weakened by over-flowering and other causes; any such should be turned out of their pots and, when thoroughly cleansed, placed in pots as small as possible. For a month or two after re-potting it is a critical time with these plants, they should be watered very carefully, a surface sprinkling with a fine rose can will often suffice, and the plants should be placed together in the shadiest part of the house. The stronger plants that have been shifted on into larger pots without involving a large amount of root disturbance may be afforded rather larger supplies of water. Others that are still in a dormant condition should not be disturbed by re-potting until the new growths have grown a few inches high. Specimens which are growing and have sufficient rooting space for another season, if the compost is good, may remain undisturbed, but some of the old materials may be carefully picked from the surface and replaced with new; this will be a great aid to the young roots. A good rooting medium for Odontoglossums consists of short pieces of Osmunda-fibre and AI-fibre in equal proportions, with an addition of chopped sphagnum-moss and crushed crocks; the whole should be well incorporated. Seedling Odontoglossums in their various stages of growth should be potted on as they require it, and be kept growing if possible at all seasons until they reach the flowering stage. As a rooting compost an equal proportion of half-decayed oak leaves may be added to the mixture mentioned for the older plants, and it should not be potted so

firmly as the older examples. Slugs frequently make their appearance in the new moss and should be trapped by placing lettuce leaves on the stages among the plants, they should be sought for in the late evenings and early mornings.

MASDEVALLIAS.—In a representative collection of these plants, there are some species and hybrids in bloom at all seasons. The winter flowering M. tovarensis should not be disturbed at the roots at this period, and the same remarks apply to the Chimæra group, but for the majority of the members of this genus the best time for re-potting is during September and February, the present time is preferable, as the roots are more active than at any other season. New leaves are developing, and young roots will soon be produced; the latter will quickly grow into the new compost and establish themselves firmly before the winter arrives. Healthy specimens with sufficient rooting space for another season, if the soil is in good condition, will not need re-potting, this will be an advantage, if well-flowered plants are required, as they seldom bloom so well the first season after re-potting. When the soil has become sour it may be picked out carefully from between the roots, down to the drainage, and new compost worked in to replace the old, taking care not to disturb the roots more than is necessary. Large plants which have lost a number of their leaves and have in consequence become bare in their centres, should be divided, and, after cutting away any dead portion, may either be potted up in small pieces or made up again into specimens. The stronger growing kinds are vigorous plants and require plenty of rooting space, and are best grown in pots or rather deep pans. Others that are not such strong growers should not be afforded so much rooting space. The dwarf growing kinds, such as M. O'Brieniana, M. Shuttleworthii and others of this type should be placed in shallow pans, the receptacles should be well drained, and the potting materials may consist of chopped osmunda-fibre, AI-fibre and sphagnum moss. For a few weeks after re-potting, afford water very sparingly, pour it around the inner edges of the receptacle. As the plants become re-established the amount of moisture should be gradually increased. Shade the plants from bright sunshine, and grow in a moderately moist atmosphere. If a special house is not devoted to these plants, they may be placed in the warmest and shadiest part of the Odontoglossum house.

CATTLEYAS, LÆLIOCATTLEYAS, BRASSOCATTLEYAS.—Seedlings raised from late sown seed should be far enough advanced in growth for transplanting. It is important that each plant be potted separately at the earliest possible time, those pricked off now will have to make roots before winter. Where space is limited, so that the plants cannot be accommodated singly in very small pots, several may be pricked out together into small pans. Seedlings that have matured their first pseudo-bulbs will be sending out

new roots from the base of the growths. These should be potted into larger pots, and given every encouragement to grow as quickly as possible. They will not make much growth in the winter, and will not require so much water at the roots or in the atmosphere as in the summer, but they must not be rested until the flowering stage is reached, neither must they be allowed to become root-bound. Seedling Cymbidiums should be treated in a similar manner, very young plants should be potted in a mixture of osmunda-fibre or Ai-fibre and sphagnum moss, while those further advanced in growth, and near the flowering stage, should be given a more substantial compost, one-third of the bulk should be composed of good fibrous-loam with some crushed crocks incorporated.

As the present month advances, we begin to think of shorter days and less sunshine, this deficiency may be made up to some extent by gradually removing the permament shading. Some shade will be necessary, but it is impossible to give precise directions, for much depends on the kind of plants contained in the separate divisions. In all cases the reduction should be gradual, the object being to cause the foliage to become hardened, so that little shading will be necessary after the end of the month, but the blinds should be used with discretion. The plants should be exposed to all the light possible without causing damage by scorching. The amount of atmospheric moisture must be regulated with extra care, and be reduced in each division. The cooler houses will require damping the least, as there will be less evaporation in these structures. In the warmer houses sufficient moisture must be promoted to counteract the effect of fire-heat, by damping down on mornings and afternoons. In the cool houses where little fire-heat is employed the floors and stages should be damped only in the mornings, except on bright days when rather more atmospheric moisture will be necessary. The watering of the plants must be regulated according to their various stages of development. Those with pseudo-bulbs near completion should receive a diminishing supply, but water must not be withheld to such an extent as to cause shrivelling. As the nights become colder it will be necessary to provide extra fire-heat; on warm days the ventilators should be opened slightly to prevent scorching, but retain as much sun-heat as possible. The ventilation of the Odontoglossum house should be carried out with great care at this season. During warm nights the top may be opened slightly to admit the autumn dews that are very beneficial to Odontoglossums.

CYPRIPEDIUM HARRISIANUM.—The first hybrid Cypripedium appeared in 1869. It was raised from C. villosum fertilised with C. barbatum, and was named after Dr. Harris, of Exeter, the man who first gave to Dominy the idea of hybridising Orchids.

PLEIONES.

By HAROLD RAVEN.

IN the whole of the vast Orchid family it is doubtful if there is to be found another genus at once so easy of culture and so productive of beauty as Pleiones; those who have seen a well-flowered pan of them will agree it is a striking and lovely sight. Yet they have never attained any great measure of popularity; most collections contain one or two specimens, but they are usually neglected and more or less overshadowed by the larger-flowered genera.

With the exception of P. formosana and P. yunnanensis, which, as the names denote, come from Formosa and Yunnan, all the species are natives of the cool and hilly parts of India, being distributed through Sikkim, Khasia, Nepal, Assam, Burma and Moulmein, where they are found growing upon moss-covered banks and rocks, and round the bases of trees. The leaves are generally deciduous, falling after the bulb is matured, the flowers preceding or contemporaneous with the commencement of growth. Often three inches or more in diameter, they are gaily-coloured and borne in ones or twos on short scapes from the base of the pseudo-bulb, the colour ranging from rose-purple to mauve and lovely soft shades of pale rose and lilac. The lip funnel-shaped, frequently fringed, and with a golden disc or keels, usually spotted and streaked with purple-brown, amethyst-purple or crimson.

Their cultural needs are simple. They should be potted about two inches apart in well-drained pans in a compost of osmunda, sphagnum, leaf mould and sand, and suspended in a light, airy position at the warm end of the Cool house or the cool end of the Intermediate. During growth, abundance of water may be given, together with daily syringing of the undersides of the leaves, but after completion and until the development of the flower spikes only enough to prevent shrivelling is needed. Personally I do not advocate heavy shading. Given a moderate amount of sunlight the leaves assume that bronze tint that denotes strong and healthy growth, and my experience has been that they flower all the better for it.

The principal species are as follows: Birmanica, Hookeriana, humilis, lagenaria, maculata, præcox and its variety Wallichiana, formosana, Reichenbachiana and yunnanensis. All are interesting and worthy of a place in the collection, where they will be a source of great delight in the late winter and early spring, and in addition provide quantities of most acceptable coat flowers.

VINE HOUSE COLLECTION.—Messrs. A. J. Keeling & Son, Westgate Hill, Bradford, have published a sale catalogue of this collection.

VANDA TERES.

THIS elegant species is widely distributed over north-east India, Assam and Upper Burmah. Travellers and collectors have seen it growing in the hot plains and valleys generally exposed to the full glare of the sun. Dr. Wallich found it in Sylhet early in the nineteenth century, and although living plants were sent to England about the year 1829, no flowers were seen until 1836, when it flowered in the gardens of the Duke of Northumberland. The flowers are 3-4 inches across, the sepals and petals pale rose-purple, often suffused with white, the three-lobed lip has the side lobes

VANDA TERES.

tawny yellow with bands of red spots on the inner side, the front lobe being pale rose-purple. In order to obtain satisfactory results a high temperature is needed and a place where little or no shading is used. A good plan is to prepare a bed of compost on the staging, or in shallow pans, and to cover the surface with living sphagnum moss, which will assist in maintaining the necessary atmospheric moisture. Syringing the plants morning and evening is also beneficial.

ROYAL HORTICULTURAL SOCIETY.

July 24th 1923.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Clive Cookson, C. J. Lucas, Pantia Ralli, Stuart Low, H. T. Pitt, A. Dye, J. E. Shill, Fred. K. Sander and Gurney Wilson.

CULTURAL COMMENDATION.

To Messrs. Armstrong & Brown for a superb example of Odontoglossum percultum (ardentissimum × Rolfeæ), bearing a branched spike of 59 flowers, which were white, the only colour being a few small spots on the lip and a rose stain on the column.

OTHER EXHIBITS.

Messrs. Stuart Low & Co., were awarded a Silver Banksian Medal for a pleasing exhibit containing the rare Odontoglossum Insleayi aureum, the pretty Dendrobium Dearei with white flowers, Dend. Victoria Regina, with flowers of a slate-blue colour, and Dend. Farmeri. Cypripediums were well seen in Maudiæ and I'Ansonii, the latter a hybrid between Morganiæ and Rothschildianum. A fine plant of Epidendrum prismatocarpum, as well as Oncidium Kramerianum, stood out prominently, and the interesting Bulbophyllum Lobbii carried several finely-developed flowers. A special feature of this group was the varied selection of Cattleya Dupreana, while distinct forms of C. Warscewiczii were well-flowered.

Messrs. Sanders exhibited several interesting plants, among them being Dendrobium asperifolium, of dwarf habit, but bearing several flowers, Lycaste tetragona, with four flowers that much resembled the plant as regards colour, except the lip, which was rose-purple. The pretty Vanda Kimballiana and a richly coloured variety of Cattleya Dowiana were two popular species, while among the hybrids were Odontoglossum excellens and a pure-white variety of Cattleya intertexta. Cypripedium Godefroyæ ochraceum was a large flower of broad formation, but having the colour of C. concolor.

Dr. Miguel Lacroze, Bryndir, Roehampton, exhibited Brassocattleya Rœhrsiana var. Santiago del Estero (Mendelii × Hardyana), a large flower of mauve-pink colour, the expansive labellum purple and having a yellow isthmus.

Pantia Ralli, Esq., Ashtead Park, Surrey, staged Odontioda Eclipse (Oda. Madeleine × Odm. Alexandrina), a new cross bearing two flowers of fleshy nature, the sepals unusually broad, and with the petals heavily marked with reddish colour.

Messrs. Armstrong & Brown exhibited several distinct forms of Cattleya

Hardyana, one having a spike of four flowers, with white sepals and petals, and a golden isthmus to the lip.

Messrs. Charlesworth & Co. staged Odontoglossum Purple Emperor (The Czar × Dusky Monarch), with three immense flowers of purplish-wine colour, shaded with crimson, the large blotch on the lip having a lighter area in the centre. It received a First-class Certificate at the Chelsea Show, 1922.

August 8th, 1923.

Members of the Orchid Committee present:—The Hon. Henry D. McLaren (in the chair), Messrs. Jas. O'Brien (hon sec.), C. J. Lucas, H. T. Pitt, Fred. K. Sander, J. T. Barker, Gurney Wilson and W. H. White.

Owing to the holiday season, the meeting was one of the smallest on record, the only exhibit being from Messrs. Cowan & Co. who staged Cattleya Thebes (Adula × aurea), with cream-yellow sepals and petals, the labellum rosy-mauve; Cattleya Diana (Sibyl × aurea), of a rich bronze-red colour, the lip deep crimson, and the largest variety of this cross yet flowered. Also C. Hardyana alba, with a spike of three well-developed flowers, Læliocattleya J. Ansaldo and Lc. Nanon, a new cross between Lc. Ivanhoe and C. aurea, the attractive flowers being of a pleasing rose-purple tint.

August 21st, 1923.

Members of the Orchid Committee present:—Frederick J. Hanbury, Esq. (in the Chair), Messrs. Jas. O'Brien (hon. sec.), Richd. G. Thwaites, H. T. Pitt, Fred. K. Sander, J. Cypher, S. W. Flory, Gurney Wilson, Pantia Ralli, E. R. Ashton, and W. J. Kaye.

The only plants that came before the Committee were Cypripedium Godefroyæ punctatissimum, exhibited by Messrs. Sanders, a very fine form with unusually broad segments, cream coloured and neatly spotted with maroon-purple colour; and a selection of hybrids from Messrs. Flory & Black, which included Brassocattleya Ida, Blenheim var., terra-cotta with delicate rose tinting, the lip fringed and mottled with claret-rose; Læliocattleya Glorita (C. Rex × Lc. Thyone), sepals and petals clear yellow, labellum margined with crimson and lined with gold; also two fine varieties of Cattleya Hardyana alba, with purple-white sepals and petals and a richly coloured lip.

ANSELLIA CONGOENSIS.—This species is found at the mouth of the Congo river, where a savannah climate prevails, with a dry season of five or six months. In years gone by, large quantities were collected, but it is now somewhat rarely seen.

MANCHESTER ORCHID SOCIETY.

July 19th, 1923.

MEMBERS of the Committee present :—A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, W. Beesley, B. J. Beckton, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, A. T. Cussons, A. G. Ellwood, J. Evans, W. Giles, J. Howes, D. Losh Thorpe, D. McLeod, J. Lupton, Dr. F. T. Paul, F. K. Sander, E. W. Thompson, J. Witham, and H. Arthur (secretary).

A Silver-gilt Medal was awarded to S. Gratrix, Esq., for a group of Odontoglossums in variety, and a Large Silver Medal to Mrs. Bruce and Miss Wrigley for an exhibit containing Cypripediums, Stanhopeas, Anguloas and Phalænopses.

FIRST-CLASS CERTIFICATES.

Odontonia Milly var. decora, a fine flower beautifully spotted with purple, the large white lip marked at the base; Vuylstekeara insignis var. picta, a distinct variety, sepals and petals deep maroon, edged with white, large white lip shaded with light maroon; from P. Smith, Esq.

Cypripedium Godefroyæ splendidissimum, a richly coloured variety; from S. Gratrix, Esq.

Odontioda Verulam (Oda. Madeline × Odm. majesticum), a very fine and richly coloured variety; from Messrs. Sanders.

AWARDS OF MERIT.

Odontoglossum Zenith; Odm. Doreen var. Blue Bird; and Cypripedium Godefroyæ amabile; from S. Gratrix, Esq.

Odontoglossum Alcimedo superbum; Odontioda Colinge var. Prince of Orange; from A. Hanmer, Esq.

Odontoglossum Schlieperianum citrinum; Promenæa stapelioides superba; from P. Smith Esq.

Odontoglossum Princess Patricia; from Mrs. Gratrix.

Miltonia Bleuana, Rutherford's var.; from Col. Sir J. Rutherford, Bart.

CULTURAL CERTIFICATE.

Mr. A. Burns, for Phalænopsis Rimestadiana, Lycaste tricolor albens and Anguloa Cliftonii.

IMPORTANT SALE OF ORCHIDS.—Messrs. Protheroe & Morris announce that they will sell by auction the remaining portion of the Blenheim Palace Collection, comprising upwards of 8,000 plants, at Cheapside, London, on Friday, September 14th, and Friday, September 21st, 1923. Catalogues may be obtained post free on application to Messrs. Protheroe & Morris, 67 and 68, Cheapside, London, E.C.2.

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NOTES.

BRASSAVOLA DIGBYANA.—From John O. Hall, Esq., 4250 Fernandez De Enciso, Buenos Aires, we have received excellent photographs of a plant of Brassavola Digbyana flowering in his collection in January, 1923. This particular plant has many bulbs, the six most recent of which each carry a stiff, fleshy and glaucous leaf, while the last season's bulb bears a well-developed flower in which the large labellum is deeply fringed, as is usual in this species. Although this plant has been cultivated for twelve years, this was the first flower produced, possibly because it had not received treatment entirely suited to its needs. Brassavola Digbyana is a sun-loving plant, and consequently requires a brighter light than that usually maintained for the general class of Cattleyas. Mr. Hall remarks that in his country it is necessary to be very careful on account of the direct scorching rays of the sun, and the extreme dryness of the air in summer. Nearly all hybrids of B. Digbyana, especially the primary ones, take many years before they reach the flowering stage. But this long period of waiting brings its full reward, for the flowers are large and exceedingly attractive, although not showing quite such a length of fringe round the labellum as is possessed by B. Digbyana itself.

ODONTIODA BRADSHAWIÆ.—Our August issue contained an article on the fine collection owned by A. N. Cooley, Esq., Pittsfield, Mass., U.S.A., and now we have received from his able cultivator, Mr. Oliver Lines, a large photograph of Odontioda Bradshawiæ. It shows a grand specimen plant bearing five long spikes and no less than 155 flowers which, for its kind, are above the average size. The reddish scarlet markings are geometrically arranged and the petals are bordered with a pretty zone of colour. It was purchased as a small plant from Messrs. Low's in 1914, and considering the somewhat trying atmosphere for cool-house plants has made remarkable progress. Mr. Lines remarks that during the past summer the temperature on most days is about 90°, but being situated on

the hills, it cools off a little at night time. However, he is certainly to be congratulated on the fine results achieved. During the month of August there have been several other notable Orchids in flower, including Cattleya Fabia var. memoria Lord Roberts, of wonderful colour; C. Princess Royal, a nice specimen plant; C. Venus var. Golden Queen, with a fine spike of four flowers; Læliocattleya St. Gothard, Glebe var., with grand flowers, and Lc. Haroldiana var. Bronze King, with four spikes having a total of fifteen flowers.

RODRIGUEZIA VENUSTA.—Of this attractive plant Lindley remarked: "This beautiful species is remarkable for the delicious odour which its flowers exhale of Jonquil or of some Water-lily. It grows among the topmost branches of the Cedrela, in the districts of Morro-Quémado and Macahé, and near the city of Bom Jesus de Bananal, blossoming in October."

ODONTOGLOSSUM FLAVESCENS.—This curious species belongs to the section Myanthum, and is allied to O. retusum, Lindl., but differs in having clear yellow flowers, with a brown margin to the stigma. It was introduced by Messrs. Sanders, with whom it first flowered in November, 1889. It is believed to have been imported along with Oncidium undulatum, which it closely resembles.

ABNORMAL FLOWERS OF A BRASSOCATTLEYA.—From the collection of Wilhelm Schmidt, Esq., we have received some curiously developed flowers of Brassocattleya Mad. Chas. Maron (B. Digbyana × C. Warscewiczii). This inflorescence of three flowers appeared on the bulb made two years ago, last year's bulb did not flower, and this year's growth is not yet completed. As is usual in primary hybrids of Brassavola Digbyana, the pedicel and ovary are very long, in two of the flowers they measure seven inches and in the third six inches. All three flowers show a reduction from the trimerous condition to the dimerous, for each has but two sepals arranged exactly opposite one another, and two petals, also similarly placed, thus producing a windmill-like form. In one flower the labellum is entirely suppressed, while in the other two it is nearly so, being only a half-inch in length. A reduction in the number of segments, such as these flowers exhibit, is probably due to the formative energies of the plant becoming exhausted. Examples of a dimerous condition are not uncommon in the last-formed flower of an Odontoglossum spike. The fact that these Brassocattleya flowers were produced on a part of the plant that is two year's old, and somewhat away from the present point of active growth, tends to support the opinion that their abnormal condition is due to being insufficiently supplied with nutriment.

ORCHID CULTURE IN THE UNITED STATES OF AMERICA.

THE collection of Louis Burk, Esq., in Philadelphia is of more than passing interest, as among the five thousand plants here brought together from various sources, many have been personally collected by this amateur when on his annual trips to Florida. I noted here some remarkable pieces of Oncidium Cavendishianum, also some very fine clumps of Cyrtopodium punctatum, many of the smaller growing Oncidiums and quite a number of Epidendrum species from the same locality.

As a true lover of plants, Mr. Burk's enthusiasm is keen, in so much that if he robs Florida of some of her wild beauty, he somewhat compensates the loss by taking out with him each year other Orchids into the jungle, where they are established in suitable places. He assured me that Phalænopsis Schilleriana, P. amabilis, P. Esmeralda and P. Rimestadiana that were attached to trees a few years ago are now growing vigorously. Other Orchids that have been so treated include Vandas and Brazilian Oncidiums.

Mr. Burk is purely an amateur and grows Orchids simply for the pleasure it affords him and his friends. His houses are always open to visitors, and his kindness is greatly appreciated by the many callers, some of whom he hopes will eventually become amateurs in this fascinating recreation.

This collection is quite a varied one, and includes about 2,000 Cattleyas and Læliocattleyas, of which 800, or more, are hybrids of well-known varieties. The Cattleya house is of the three-quarter span roofed style, with a south aspect. The plants are clean, vigorous, and show great promise for future flowering. The Phalænopses are a splendid lot, and I was indeed fortunate to see the rare P. Harrietæ in flower, for it had recently been described in the *Orchid Review*. Phalænopses here are not grown so warm as in England, consequently they make thicker and shorter leaves, but flower freely. Of the 500 plants many were in flower at the time of my visit, and I was informed that throughout the whole year there are always a few flowering.

Mr. Burk is fond of Cypripediums and grows about a thousand, principally hybrids of the winter-flowering type. I also noted quite a number of Vandas, including specimens of tricolor, suavis and well-grown plants of cœrulea, but the most envious plants were a dozen nice pieces of V. Sanderiana, which flower well under treatment similar to that given the Phalænopses.

Mr. H. E. Moase is in charge of this interesting collection. He has had a varied experience in the United States, and was formerly in the

employment of Pantia Ralli, Esq., Ashtead Park, Surrey. Mr. Burk speaks highly of his successful methods, and the plants testify to being in capable hands by the great improvement they have shown in the last year's growth, especially is this the case with the Cattleyas, both species and hybrids. I foresee this collection growing with increasing interest and giving greater pleasure to the popular owner, as well as to his friends, many of whom, it is hoped, will eventually take up the cultivation of these beautiful plants.

Having completed my business in Philadelphia and the district, I proceeded by the night train to Pittsburgh. On being awakened by the car attendant, I had a real surprise. We were in a fog in the true sense of the word. I was informed that such an atmospheric condition is frequent in this district, and shortly afterwards I learnt the reason. Pittsburgh is the American representative of Sheffield, Birmingham, Cradley-Heath, Wolverhampton and Wigan combined. The atmosphere is appalling, and my first thoughts were, can anybody really grow Orchids here? I made enquiries for Lexington Avenue, which certainly sounded better than Wigan, and felt grateful when I was informed that this address was a few miles out from the centre of the city. I soon renewed my acquaintance with friend T. Tyler, and after satisfying his enquiries regarding his many friends we entered the Orchid houses.

Here I found a large stock of Cattleya species, especially of C. Mossiæ. There were useful batches of C. labiata, C. Mendelii, and C. Warscewiczii, and quite a collection of Dendrobiums also occupied the same house. In an adjoining house were staged an assortment of Cypripediums comprising most of the best-known forms, and nearly all of them had just been repotted. Along with them was a batch of Odontiodas that appeared to thrive well in the warm atmosphere maintained for the Cypripediums.

Mr. Armstrong is a great lover of his plants, a pleasure that he shares with numerous friends. He always extends a warm welcome to anyone visiting his Orchid houses. I found this amateur greatly interested in the progress that is taking place in England, and particularly so with regard to the modern hybrids of Cattleyas and Cypripediums. He can certainly show the citizens of Pittsburgh that choice flowers can be produced within a few miles of belching chimneys. I was sorry when the time came for me to return to the pall of smoke, but having been commercially rewarded I felt fortified against even a Pittsburgh atmosphere. A.G.E.

(*To be Continued.*)

AUTUMN ORCHID SHOW.—The Royal Horticultural Society's Autumn Orchid Show will be held on October 30th. The date given in the advertisement pages of our August issue is a misprint.

BULBOPHYLLUM CYLINDRACEUM.

THIS curious species, somewhat resembling the habit of a large Masdevallia as regards its growth, produces a spike 12-18 inches high, the apex nodding, and densely crowded with blackish-purple flowers, in some they are almost black. In the original description (*Gen. & Spec. Orch.*, 53) Lindley remarked:—"I know this very remarkable plant only from an excellent drawing in Dr. Wallich's possession. It is not more remarkable for its very dense imbricated flowers, which have a great spathe-like bractea at the base of their spike, than for the want of the spurious bulbs, which are, with this single exception, characteristic of the genus."

According to Sir Joseph Hooker, there is considerable variation in specimens from different localities. He states (*Fl. Brit. Ind.*, 765):—"There are two forms found in both Sikkim and the Khasia Hills. B. cylindraceum proper, upper sheath of scape embracing the base of the spike, and var. khasianum, upper sheath smaller distant from the spike." He also states that "Wallich's figure is probably grossly exaggerated (made in Nepal, there are no specimens in his herbarium)."

B. cylindraceum forms the subject of a coloured plate in King & Pantling's *Orchid of the Sikkim Himalaya* (*t.* 96). They describe it as growing at elevations of 6,000 to 7,000 feet, and in flower from October to January. The column is of a paler purple than the rest of the flower, and the floral bract is of the same tint. The colour of other parts of the flower makes the nearest approach to black. They also state that the Sikkim plant rarely has the sheath above described by Hooker.

Megaclinium minutum.—This is probably the smallest known species of the genus, being only about two inches high. The curiously flattened rachis is purple-brown, and the flowers dull maroon and greenish-yellow.

Caladenia dimorpha.—This Australian Orchid produces two marked varieties, the one pure white, with the exception of the calli on the labellum (which are straw yellow), the column and the point of the labellum; the other white, with the calli and tips of the fimbriæ of the labellum, and point of labellum, purple. This is the only species of Orchid I have known, when placed in a room, to be fertilized by insects. A house-fly lighting on the lip was carried by its spring against the column, and becoming entangled in the gluten of the stigma and struggling to escape, removed the pollen in its masses from the anther and smeared them on the stigma. Such rather large insects are, I believe, the principal agents of fertilisation in the genus; the species of which, without some such agency, never produce seed.—R. D. Fitzgerald, in *Australian Orchids*.

ORCHIDS AT GRAFTON HOUSE, WEST BRIDGEFORD, NOTTINGHAM.

AT Grafton House, West Bridgeford, the residence of L. O. Trivett, Esq., an ardent collector of Orchids, is to be found an exceedingly well selected assemblage of these plants. Containing over 600 plants, the collection is accommodated in one three-quarter span house divided into three sections.

In the first section are to be found a number of miscellaneous Cypripediums of the insigne type grown for cut-flower purposes. In the second, which is heated as an intermediate house, there are many interesting inmates, mainly Cypripediums and Cattleyas. Among the Cattleyas and Læliocattleyas, hybrids and unnamed seedlings predominate. Fine forms of C. labiata alba, C. bicolor, C. Mrs. Pitt, and several strong plants of C. Soramis (Empress Frederick × Mendelii), which Mr. Trivett considers one of the finest things in the collection. Brassocattleya Windsor, Læliocattleya Martinetti and most of the well-known Læliocattleyas were noticed.

A particularly good lot of Dendrobiums are suspended above the centre path, among them being D. Ainsworthii, D. Sir F. W. Moore, and a representative collection of D. nobile varieties that includes most of the best forms. The opposite side of the house is devoted to Cypripediums, in which Mr. Trivett is especially interested. Noteworthy plants are The Cardinal, Antinous, several varieties of Euryades, including Charlesworth's, Victoria Marie, tonsum, Lord Derby, Tityus, Princess Ena, Morganiæ, Ian Hamilton, Calypso Oakwood variety, callosum var. Wm. Matthews, numerous named varieties of insigne and Leeanum, as well as a healthy batch of Maudiæ growing in pots filled simply with sphagnum moss. At the end is a fine specimen of Cœlogyne Massangeana, several good plants of Brassia verrucosa, Chysis bractescens, and the pretty Odontoglossum citrosmum.

In the third division, maintained as a cool house, and devoted in the main to Odontoglossums and Cymbidiums, some especially interesting things are to be found, including two strong plants of the choice Odontoglossum amabile augustum, which came from the collection of the late Mr. Edmund Berrey, and when purchased some years ago at Chelsea Show as a small plant cost 150 guineas. Other notable Odontoglossums are O. Thwaitesii var. Louis Trivett (ardentissimum var. Mrs. N. Cookson × Harryanum), promerens, Clytie, Phœbe magnificum, Queen Alexandra, Wilckeanum, rosefieldiense, Aireworth, and triumphans var. latisepalum. In addition, there is quite a wide selection of Odontiodas, such as Beryl, Bradshawiæ, Vuylstekeæ, etc. The Cymbidiums, which Mr. Trivett

informed me had only recently been repotted, were a most healthy looking lot and included fine plants of Tracyanum, Lowianum, Gottianum magnificum, Redstart and Martin.

Other plants of note are Lycaste cruenta and L. Deppei, Miltonia vexillaria var. Empress Augusta Victoria, a nice lot of Vandas, including teres, suavis Veitchii, and a magnificent plant of V. tricolor with a fine branching flower spike. The collection is notable for its high quality and the clean, healthy condition of the plants, reflecting great credit on Mr. Trivett for the care with which he has selected his plants, and on Mr. Allen, his Orchid grower, whose cultural skill has produced such good results in a situation where climatic conditions and the impure state of the atmosphere leave much to be desired. HAROLD RAVEN.

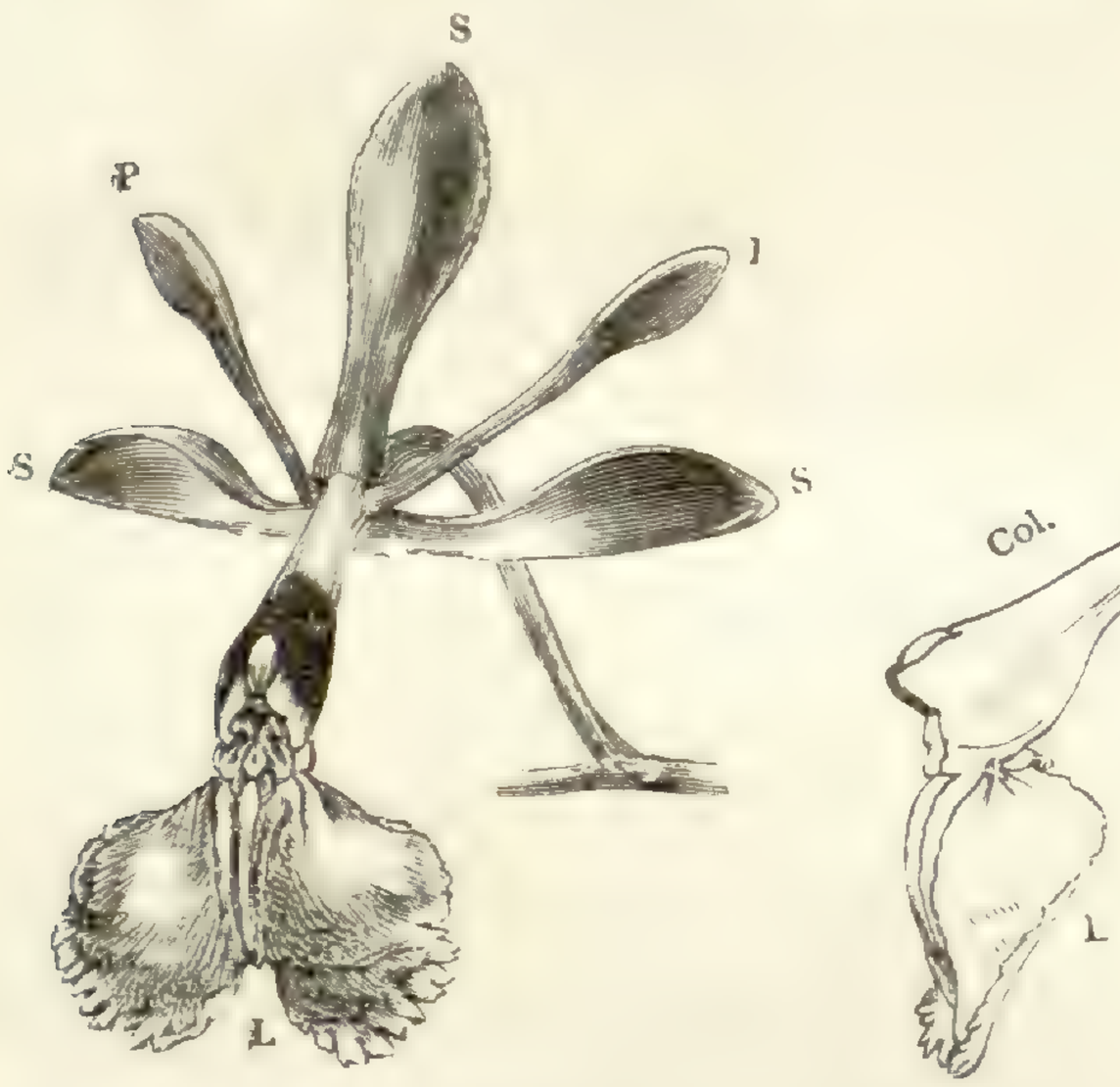
ERIA BROWNEI, BRAID.—This new species has been discovered by Major St. John Browne, son of Lieut.-General Sir A. G. F. Browne, K.C.B., Lower Bourne, Farnham. The botanical description will be published in the *Kew Bulletin*. In the meantime it may be stated that the flower is exceedingly fragrant and of a waxy-white colour, except for the lip and the anther. The base of the lip is white, the side lobes and anther are marked with reddish-purple, and the apex is yellow. Besides the two distinct keels on the base of the lip there is a suggestion of a median one, and a semi-circle of tubercles on the anterior lobe. E. Brownei belongs to the section Hymeneria and is related to E. alba, Lindl., but the whole plant, and especially the pseudo-bulb, is much larger.

TREATMENT OF DISAS.—The *Gardeners' Chronicle* of August 25th, 1923, contains an interesting article on Disas by Mr. Jas. O'Brien. He remarks that where Disas are treated as Orchid house plants all the year round they collapse in time, but when grown in more airy conditions and a greenhouse temperature with a reasonable amount of sunlight, they are not difficult subjects. With regard to Disa racemosa, Mr. O'Brien says it may be useful to mention how these plants were packed, for there are others of the beautiful class yet to import, and it is to be hoped someone will take the trouble to secure them. Strong growing tubers with leaves were selected and placed, six or seven together, in a thin covering of the moss growing near them, and no moisture was given beyond what the living moss contained. The little bunches of Disa were then placed in layers in a small deal box, which was sent off at once, and the plants came as fresh almost as when they were collected. The explanation of the success is that they were packed where collected with their natural moisture, no water was added, and they were sent off as soon as possible. On arrival they grew as though they had not been disturbed.

THE SEGMENTS OF ORCHID FLOWERS.

(*Continued from page* 237.)

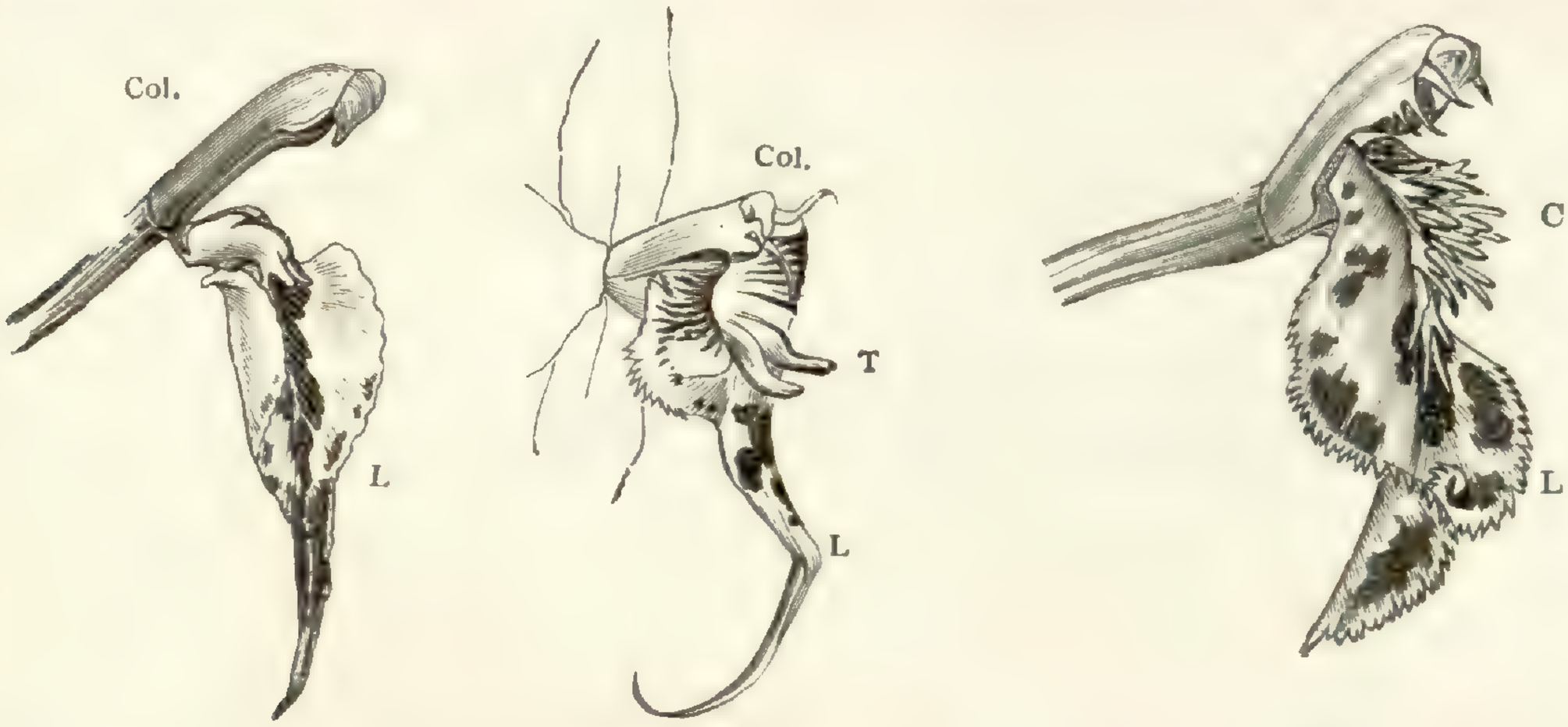
FOLLOWING up our remarks on the labellum, it may be pointed out how the relative position of this organ and the column affords an important character in distinguishing several of the genera. The accompanying figure of Odontoglossum cordatum clearly shows the manner in which the labellum is affixed to the column, only a comparatively thin, hinge-like structure connecting them. In the genera Lælia and Cattleya a similar condition may be seen, except that the side lobes of the lip generally curl over the column and give the labellum a tube, or throat-like, formation. But in the genus Epidendrum the labellum is affixed to almost the whole length of the column, and on that account is botanically described as being adnate to the column. This character forms an easy means of recognising the genus. Reverting to Odontoglossum cordatum, it was the cordate, or heart-shaped, form of the labellum that induced Lindley to so name this species in 1838.



EPIDENDRUM PSEUDEPIDENDRUM

If in the genus Odontoglossum we examine the base of the labellum, that is the end nearest the column, it will be noticed that there is a considerable difference in the formation of the so-called crests of the various species. In O. cordatum this crest is not much in evidence, for it consists only of two erect lobes and in front of them two blunt teeth. In O. cirrhosum these two teeth (T) are much more prominent, while in O. Harryanum and O. Hallii the crest (C) may be seen in its fullest state of development. In days gone by, when Odontoglossum crispum was imported in tens of thousands, much interest was displayed in flowering these plants for the first time under artificial cultivation, for occasionally a blotched variety of considerable value appeared. Although these blotched varieties were spoken of as crispums, a close examination of many of them showed that the crests differed from those of the true species, and on that account their hybrid origin was partially detected.

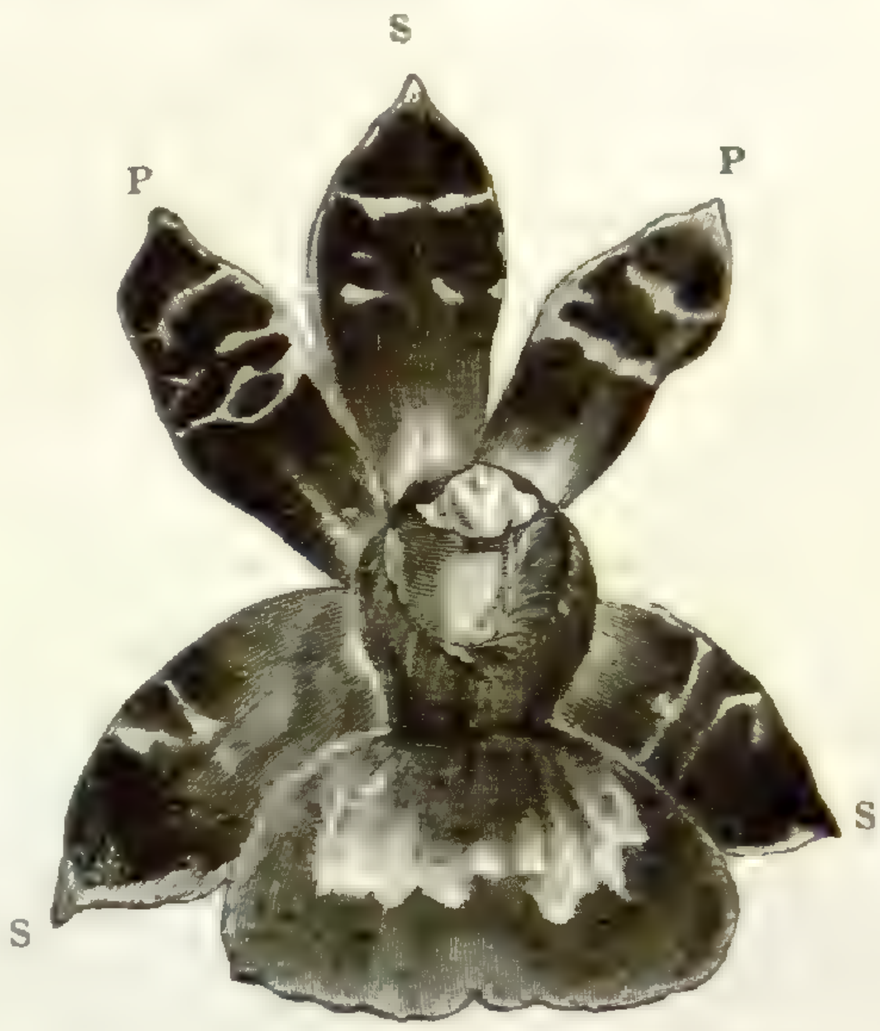
Although the majority of Odontoglossums in amateurs' collections are garden-raised hybrids, it is always a matter of interest to trace their ancestry by means of the specific characters displayed in the flowers, and of



LABELLUM OF (1) ODONTOGLOSSUM CORDATUM, (2) O. CIRRHOSUM, (3) O. HALLII.

these the crest-like formations on the labellums form some of the most interesting and safest guides. In the reproduced photograph of O. warnhamense (Hallii × Pescatorei) on page 245 of our August issue it will be noticed that the characteristic spiny crest of O. Hallii is strongly inherited. In several Odontoglossums the crest is of a bright-yellow colour, and although this feature has never been taken into account when creating hybrids, it certainly seems worthy of consideration, for situated as it is in the centre of the flower the eye is invariably attracted to it. In hybrids of O. cirrhosum, of which triumphosum (triumphans × cirrhosum) affords a good example, the crest area of the flowers is generally of a pleasing yellow colour, while in O. Rossii this bright colour is extended from the tooth-like crest to the surrounding area in a manner that makes many of its hybrids particularly distinct in this respect.

Zygopetalum maxillare affords an example of extreme development of the crest, which in this case is very prominent and fleshy, ridged and furrowed on the inner side, as well as being of violet-purple, an unusual colour in Orchids. This species was named maxillare by Messrs. Loddiges on account of the fanciful resemblance of the crest and column to the jaws of an animal.



ZYGOPETALUM MAXILLARE.

In the genus Disa, a noteworthy characteristic is the degree of uniformity and comparative insignificance of the labellum. With the exception of the section Herschelia of about a dozen species, the labellum is usually very small, and often much smaller than any of the sepals. In Disa it is the dorsal sepal that is usually the largest of the segments, and it seems to fulfil the part which in many Orchids is played by the labellum. Disa grandiflora is the best known representative, and an examination of its flowers will show that what appears on first sight to be the labellum is in fact the dorsal sepal of hooded formation.

SONGS OF THE ORCHIDS.

AERIDES ODORATUM—THE AIR ORCHID.

Give of your care,
  Give light and air,
And I will give
  You beauty rare.

A joy to set
  Your heart aglow,
Rose-light ablush
  In a bed of snow;

A soul's deep fragrance,
  A charm benign,
A splendour matchless,
  A grace divine.

Such beauty blows
  In my blossom fair,
Such beauty's born
  Of light and air.

ANGRÆCUM SESQUIPEDALE.

Nun-like thou art
  In snow-white vesture veiled,
With the sheer atmosphere
  Of Heaven regal'd.

Thou art a gleam
  Of Heaven, a soul of light,
A star beyond thy bars
  Of leafy night.

Lo, thy long spur
  Full-deep with nectar blest,
That none may have for feast
  Save bidden guest;

And he shall come
  And feast and drink the whole
Sweet passion-secret of
  Thy fragrant soul.

J. H. A. HICKS.

VANDA MOOREI—At present there are not many hybrids in the genus Vanda, but the time may come when artificially produced crosses will be seen more frequently in amateurs' collections. V. Kimballiana and V. cœrulea are two species that grow together in Upper Burmah, and on that account a hybrid between them is probably not uncommon. In an importation of V. cœrulea received in England about the year 1897, a plant showing clearly the characters of both these species came into flower and was named V. Moorei. The leaves were rather fleshy, about twice as broad as in V. Kimballiana, and nearly flat, while the length of each was about seven inches. The sepals and petals were lilac, and the front lobe of the lip dull purple.

CYPRIPEDIUM MAUDIÆ.

OF all the Cypripedium hybrids, but few have risen to such popularity as is enjoyed by C. Maudiæ. In all the large collections of the well-known amateurs there are many specimen plants of it to be seen flowering in the autumn months, while no matter how small the collection may be, this hybrid is generally among the first half-dozen members of the genus that are acquired. It possesses a robust constitution, and on that account is easily propagated, while its long flower-stems and the beautiful greenish tints of the blooms render it particularly useful for decorative purposes. The flowers last a long time in perfection; on one occasion a newly-opened flower was severed from the plant, and after being put in water remained fresh for over a month.

The parents of C. Maudiæ are C. Lawrenceanum var. Hyeanum and C. callosum var. Sanderæ, both albino forms of the two species. About thirty years ago these two plants existed only in a few pieces that had been propagated from the originals, and they were of considerable commercial value, sums of more than a 100 guineas being necessary to acquire a single example. But it so happened that at that time two amateurs, we believe they were Major Mason and Mr. Chas. Winn, each had one of the above rarities in flower, and they agreed to cross them. The seed duly ripened and was sown, but without immediate success. The pot upon which the seed was sown subsequently passed into the hands of Messrs. Charlesworth & Co., whose foreman, Mr. J. Baguley, placed it in the warm and humid atmosphere of the Phalænopsis house. Seedlings soon appeared, and the largest gave its first flower in the autumn of 1900, when it was named after Mr. Baguley's daughter. On Sept. 27th of the same year C. Maudiæ was exhibited at the Manchester Orchid Society and received a First-class Certificate. On July 30th of the following year it obtained a similar recognition when shown at the Royal Horticultural Society by Mr. G. W. Law-Schofield, whose collection was then in charge of Mr. J. E. Shill. No one who visited the R.H.S. Autumn Show of last year will ever forget the magnificent specimens of C. Maudiæ staged by Mr. Shill in Baron Bruno Schröder's superb group. They numbered over a dozen, each with from 20 to 25 fully developed flowers on tall stems. These particular plants are cultivated in nothing else but sphagnum moss, fresh supplies being added as the older part decays. At the present time there is a specimen in the Baron's collection with over a hundred growths.

An interesting fact concerning C. Maudiæ is that it was first produced in the albino form, and thus in this point its history differs from that of almost all other hybrid Orchids. If the typical form of Lawrenceanum and callosum had been crossed and recorded as C. Maudiæ, then, on the appear-

ance of the albino seedlings, it would have been necessary to use such term as C. Maudiæ var. albens. But as it happens, the single word Maudiæ denotes the albino variety and Maudiæ var. coloratum the normally-coloured form. This coloured form of Maudiæ was raised by Messrs. Keeling & Son, and first flowered in 1905. In 1906, Mr. J. Leemann exhibited C. Maudiæ var. Amy Leemann, which had been produced by crossing the typical variety of Lawrenceanum with the albino variety of callosum. The colour of this hybrid differed very slightly from that of Lawrenceanum, the albino variety of callosum having very little effect, although some amateurs who saw the flower thought that its influence could be discerned. This result is in accordance with others obtained whenever an albino variety is crossed with a coloured one; the seedlings revert to the normal colour of the type.

Much success has been achieved by combining Maudiæ with other albino varieties. It has been crossed with both of its parents. Cyp. Holdenii (Maudiæ × callosum var. Sanderæ) was exhibited by Mr. J. J. Holden at the Manchester Orchid Society, Sept. 9th, 1909, and Cyp. Alma Gevaert (Maudiæ × Lawrenceanum var. Hyeanum) was flowered by Mr. Pauwels in 1911. Mr. Clive Cookson flowered Cyp. Warden (Maudiæ × Holdenii) in 1920, and also in the same year the elegant Cyp. Emerald (Maudiæ × Curtisii var. Sanderæ). And still another example of combining these albinos was first seen in 1921, when Messrs. Sanders showed Cyp. Enchantress (Alma Gevaert × Curtisii var. Sanderæ). One other hybrid may here be mentioned, for it has been a great favourite with many amateurs, and that is Cyp. Rossettii (Maudiæ × insigne var. Sanderianum), raised in the collection of Lieut.-Col. Sir George Holford by Mr. H. G. Alexander, and first seen in 1908. It should be noted that the albino variety of insigne known as Sanderianum was used in this case. Seedlings in which the better known variety Sanderæ was used also flowered in the above collection, but all came coloured, as also did those raised by Mr. Cookson. Hence it is inferred that there is more difference in these two forms of insigne than is generally believed.

VANDA PUMILA.—This species is closely allied to V. cristata, but differs in having a strong conical spur, and in the absence of the horns at the apex of the lip. It is a native of Bhotan and Sikkim, where it grows at an elevation of about 2,000 feet.

BULBOPHYLLUM COCOINUM.—This pretty little species, a native of Sierra Leone, was imported by Messrs. Loddiges and flowered in their nursery at Hackney in January, 1835, filling the house with the scent of a cocoa-nut, in allusion to which the specific name was given to it by Bateman.

CYPRIPEDIUM MAUDIÆ FLOWERING IN THE COLLECTION OF MRS BRUCE AND MISS WRIGLEY, BRIDGE HALL, BURY, LANCASHIRE.

ORCHIDS AT HAYWARDS HEATH.

YEARS ago, at a time when the principal collections were composed mainly of Orchid species, the firm of Charlesworth & Co. was established at Bradford, and there an extensive assemblage of the most popular kinds then required by amateurs was cultivated. But in 1908 an entirely new establishment was erected at Haywards Heath, where everything that means progress in Orchidology is to be seen.

The late Mr. Charlesworth was an early worker in the art of hybridising and seed-raising, and until the end of his life never tired of experimenting or working out better methods. Sometime before 1895 he had raised several crosses of Lælia cinnabarina, and the one he put most faith in was this species crossed with Cattleya aurea, for he anticipated the production of a large flower having the glorious colours of both species. But when the first of these seedlings reached maturity in the year 1900, the flowers were found to be much below the expected size. Noticing his disappointment, a friend suggested to Mr. Charlesworth that although the flower appeared inferior, matters might be partially remedied by putting a good name upon it and calling it Læliocattleya Charlesworthii. Even at the present time this hybrid is much in request on account of its decorative nature, while the good name of Charlesworth has spread to every part of the world where Orchids are cultivated.

Of the many years that have since passed, each one has seen the first-flowering of numerous new hybrids that have been raised by this firm. Almost all sections have been taken in hand at one time or another, with the result that the attractions of hybrid Orchids have been greatly increased. Messrs. Charlesworth & Co. were the pioneers of the Pure Culture method of raising seedlings, and through its use they have made advances into regions that have hitherto been regarded as impenetrable. It is only necessary to refer to the illustration on page 81 of our last volume to gain an idea of the extensive manner in which the seed is raised, for hundreds of glass flasks contain the fungus-infected compost upon which the seed germinates in multitudes. An adjoining house, also 100 feet in length, is entirely filled with literally hundreds of thousands of tiny seedlings that have been pricked off several in a small pot. In a third house of equal size the seedlings are slightly larger, while in a fourth they are to be seen each one in a separate pot. It is surprising how many of these little pots can be neatly arranged in a house 100 feet in length: six thousand is a low estimate.

There are no less than 24 houses, each a 100 feet in length, and as several of them are wide enough to admit of a large central staging, the total number of plants cultivated can only be reckoned by tens of thousands.

Some of the largest are entirely filled with specimen plants of the Lælio-cattleya section that in days gone by achieved much fame, and even at the present time are unsurpassed for large flowers of fine coloration. They comprise such noted hybrids as Lc. Fascinator, Lc. Canhamiana and Lc. luminosa. A special endeavour has always been made to effect an improvement in the shape of the spring-flowering hybrids, for it was a constant remark at the old Temple Shows that most of the Cattleya hybrids displayed a drooping nature in the petals. Recent results have proved how great has been the improvement, for now one can see at the Chelsea Shows a wide range of these hybrids that have petals as stiff and fleshy as anyone would desire. No two better examples can be given than Cattleya Tityus and C. Clotho.

With the autumn-flowering section the variation in colour ranges from the albino varieties of C. labiata to the darkest forms of C. Fabia. The hybrids that have been raised in these houses are far too numerous for a detailed account. Not many have enjoyed greater popularity than Cattleya Iris (bicolor × aurea), and although there are comparatively few plants of it in cultivation, its distinctive qualities have been carried on in C. Venus and Lc. Lusitania (C. Iris × Lc. Phryne). Hybrids of Brassavola Digbyana have been raised in immense quantities. They are given somewhat stronger light than other hybrids, more especially so when their new bulbs have just been completed. Among the conspicuous successes are Brassocattleya Cliftonii, Bc. Princess Patricia (Bc. Cliftonii × C. Enid), of which some remarkable varieties have been seen, and Bc. Sofrano (Bc. Mrs. J. Leeman × C. iridescens), this latter yielding flowers of a beautiful saffron colour.

In other houses devoted to the warm-growing kinds, there are varied collections of such interesting plants as Catasetums, Mormodes, Cirrhopetalums and Bulbophyllums, while another part is devoted to Dendrobiums, Thunias and Cœlogynes. Madagascan species are well represented by the noble Angræcum sesquipedale, the pretty A. citratum, and several other members of the genus. In 1917 Messrs. Charlesworth flowered the interesting Eulophiella Rolfei, obtained by crossing the two Madagascan species E. Elizabethæ and E. Peetersiana. This hybrid, which is the only one yet raised in the genus, has proved a great acquisition, and inherits the sweet scent of the latter parent. As further evidence of the wide range of hybridising carried on by this firm, mention may also be made of Schombolælia tibibrosa, obtained by crossing Lælia tenebrosa with Schomburgkia tibicinis, the first flowers being seen in 1913. Of the many strange crosses nearing the flowering period, much interest is attached to a series of Vanda hybrids, the largest of which average about a foot in height. They include tricolor crossed with Sanderiana, as well as cœrulea with suavis, teres, Sanderiana, and Miss Joaquim, respectively. No one can foretell what

beautiful colour productions will result from the mingling of the blue tints of cœrulea with the varied ones of Sanderiana. At the south end of one of the large houses a wide bed of sphagnum moss has been prepared to accommodate the sun-loving species known as V. teres and V. Hookeriana, as well as the elegant hybrid between them called Miss Joaquim. No shade is given, and the result is to be seen in strong healthy stems that yield long-lasting flowers.

A section of the seed-raising department is devoted to the multigeneric hybrids that have of late years given such surprising novelties. Here are to be seen the new trigeneric hybrids that combine the genera Miltonia, Oncidium and Cochlioda; they are classified under the name Charlesworthara and bear flowers of uncommon tints. There is also a large batch of Oncidiodas and many Miltoniodas. An extensive list of new hybrids has been produced by using Miltonia vexillaria var. G. D. Owen, which is noted for the dark crimson blotch on the base of its lip, a feature that is capable of being perpetuated in a marked manner.

Considerable attention has been given to the breeding of Odontonias, for in combining the genera Odontoglossum and Miltonia a very beautiful class of flower has been created, and one, moreover, that is suitable for cultivation in climates somewhat too warm for Odontoglossums. Just on fifty distinct Odontonias have already been flowered, and there are many more whose first flowers will be seen within the next twelve months. One of the finest is Odontonia Pittiæ (M. Bleuana × O. Harryanum), in which the whole flower is a deep rose colour and with a few darker markings of crimson-purple. Probably the most striking feature of this large establishment is the enormous number of Odontoglossum hybrids. There are thousands of them in each of the houses devoted to their cultivation. For years past the interest taken in this section has been considerable, and at the present time is as keen as ever. Although much variation is visible in the respective crosses, it must be admitted that even the so-called inferior varieties are pretty to behold and generally possess decorative qualities. One would expect that with such multitudes of seedlings F.C.C. varieties turn up frequently, but such is by no means the case, for a higher standard of excellence is required each year, and as all the suitable species have apparently been utilised to their fullest extent there is a lack of new material for further combinations. All this proves that when a specially fine variety is produced there is very little chance of its being outclassed by others of greater merit.

The raising from seed of certain species is also carried on, and serves to maintain the stock of plants that are difficult to import as well as those of special merit. A batch of Cattleya aurea that has been so produced flowers freely each autumn. The most important lot of seedlings is undoubtedly

The Premier type of Odontoglossum crispum, raised by breeding from some of the finest of unblotched varieties. It may truly be stated that never in the history of importing this species have such remarkably fine varieties been seen. The segments are thick textured and roundly formed in an extraordinary manner, and unblotched save for a few spots on the labellum. The albino varieties, in which the pure-white flowers have no other colour than some occasional lemon-yellow spotting, are one of the sights most likely to be remembered by anyone visiting this important establishment, for more than a thousand of these plants are arranged on the central staging of a large house. Along with them are other albinos, such as ardentissimum xanthotes and eximium xanthotes, all extremely beautiful, and in the flowering season producing a snow-like mass of bloom.

Odontiodas are neatly arranged in a long span-roofed house. The great assistance that Cochlioda Noezliana has been to the hybridist is amply proved by the remarkable series of scarlet-flowering plants here to be seen. One of the surprising results was the first flowering, in 1908, of Odontioda Charlesworthii (C. Noezliana × O. Harryanum), for in it the colouring was equally suffused throughout all the segments, instead of being broken up in irregular spotting. Probably in no other section of hybrids has so much colour variation been produced, and in the spring-time the Odontioda house is full of colour that ranges from orange-yellow to the deepest chocolate. The ambition of this firm is to produce in quantity certain art tints that are much in request for decorative work, and judging by the preliminary results already achieved, there is good reason to believe that these anticipations will be realised.

Messrs. Charlesworth have always excelled in the richness of colour production, and some of their best results have been seen in the hybrids known as Vuylstekearas, which combine the three genera Odontoglossum, Cochlioda and Miltonia. Sophronitis grandiflora is still used, although not so much as formerly, for its descendants seem more likely to yield new colour effects. Numerous Certificates have been awarded to Sophronitis hybrids that have originated in this establishment, and of those that have achieved the widest fame first place must be given to Sophrolæliocattleya Marathon, for fine varieties of it are to be seen in nearly every amateur's collection. Probably the most admired of all Sophronitis hybrids is the wonderful Slc. Prince Hirohito (Slc. Marathon × Sl. Leda), to which a First-class Certificate and a Silver Lindley Medal were awarded at the Chelsea Show of 1921.

Cypripediums occupy considerable space, and embrace most of the well-known species and hybrids, as well as a few that are expected to eclipse those of the past as soon as they reach maturity. One cannot refrain from admiring Cypripedium Charlesworthii, one of the last of the popular species

to be discovered, and well represented by numerous plants in flower at the time these notes were made. In other houses there are many specimens of the fine old Orchids, such, for example, as Stanhopeas, which have not as yet been taken seriously in hand by the hybridist, Trichopilias, many Sobralia species and hybrids, various forms of Phaius, and a representative selection of the more showy Maxillarias.

Passing through another house, the visitor meets with countless botanical species, many of which are fast becoming rare, for no importations are now received. Some are immense plants growing in wide pans, while others are in small pots and baskets suspended from the roof. To those who are fond of this class of plant there are endless attractions, for the more the minute flowers are examined so much the more is their wonderful construction admired.

Large as this establisment is, there is still need for more houses to accommodate the many new seedlings. With customers in all parts of the world, it is necessary to cultivate for them a very wide range of plants, in order that only those likely to prosper in the various climates may be sent out. An important point always remembered by this firm is that a plant should possess a strong constitution, for no matter how fine the flower may be, the new owner will not long be satisfied with his purchase if he fails to cultivate it successfully. With the extensive experiments that are continually been carried on, there are oftentimes some very promising results, yet the plants themselves remain difficult subjects to cultivate. Further work is being carried on with these, as it is hoped that future crossings with stronger growing kinds may ultimately yield a robust constitution as well as an attractive flower.

Anyone desirous of seeing a model place will feel well rewarded, for the construction of the houses, the methods of shading, the extensive sheds for packing plants and preparing them for exhibition, as well as the large boiler houses and heating apparatus are all arranged on modern methods, while electric current for lighting the whole place is produced on the premises.

In January last the business was turned into a private limited company, when several members of the staff became shareholders. Mr. H. H. Smith, who has been connected with the firm for nearly thirty years, and manager since 1901, continues, as managing director, to uphold the high position that the firm has attained by its progressive policy. The Continental branch in Brussels is still maintained, notwithstanding the adverse circumstances brought about by the rates of foreign exchanges, which prevent clients from securing many of the choice Orchids produced in England. But with the world's trade generally in a more prosperous condition, Messrs. Charlesworth are confident that there will be a bigger boom in Orchids than was ever experienced before.

SHROPSHIRE HORTICULTURAL SHOW.

THE annual exhibition and fête arranged by the Shropshire Horticultural Society was held at Shrewsbury, and again proved a great success. Many thousands of people attended it, and on several occasions the entrance gates had to be closed for short periods.

Orchids are not the feature at this event as they are at Chelsea. The only group entirely composed of Orchids was that of Messrs. Sanders. It was a pretty, though not large, exhibit and contained Cattleya Hardyana and its white variety, Dendrobium atroviolaceum, as well as D. asperifolium, a charming dwarf species with comparatively large flowers, Cattleya Lilian Sander, C. Fulva, and C. triumphans, in which the influence of C. Rex was clearly visible. Other noteworthy plants in this group were Brassavola Digbyana, Vanda cœrulea, as well as Odontoglossums superimposed on a ground work of Begonia Rex. A Silver Medal was awarded.

Messrs. Stuart Low & Co. exhibited some Orchids at the end of their Carnation group, a Silver Medal being granted for the whole. Cattleya Hardyana was in fine form, also Cypripedium Maudiæ, Cyp. Shillianum, and Blc. Violetta. There was also a finely flowered example of Oncidium incurvum album.

If Orchids were not a strong feature as groups, they were certainly well represented in the other exhibits and floral decorations. In the class for miscellaneous and fine foliage plants the exhibits probably aroused more interest than in any other, and competition was very keen. Messrs. Cypher & Sons were first with a most artistic arrangement in which Cypripedium Maudiæ and Cyp. Rossettii, Cattleya Gaskelliana and Læliocattleyas were placed with considerable taste, while finishing touches were given by long-spiked plants of Odontoglossum hastilabium, Oncidium incurvum, On. oblongatum, and On. flexuosum. The second prize went to Mr. W. A Holmes, of Chesterfield, who used Cattleya Harrisoniæ, Dendrobium formosum and Miltonia vexillaria to full advantage. The third prize went to Sir G. H. Kendrick, Edgbaston, whose exhibit contained well-flowered plants of Brassavola cordata, Cattleya Hardyana, Epidendrum vitellinum, with its brilliant flowers, and some well-grown plants of Dendrobium superbiens and Brassia verrucosa. The two last mentioned species are particularly effective in grouping, and it is regrettable that they are not more often grown and used for this purpose. The long arching spikes of Brassia verrucosa, though not brilliant in colour, appear to blend with every other flower, and no matter where placed, or whatever contrast is made, stand out well.

W. R. Manning, Esq., of Dudley, completed the entries in the above

class. In addition to Odontiodas and Odontoglossums, he exhibited some exceptionally well-flowered plants of Oncidium incurvum and On. Wentworthianum. Other noteworthy plants were Epidendrum vitellinum, the now scarce Lælia crispa, various Læliocattleyas and Odontoglossum crispum. The last mentioned species appears to be better adapted for grouping than many of the hybrids derived from it. The arrangement of all the groups, the tasteful placing of the Orchids, as well as the finish and excellence of the foliage plants used, proved an object lesson in each entry.

Mr. R. F. Felton, Court Florist, London, was awarded a Gold Medal for floral designs. With three exceptions, Orchid flowers were largely used. Uncommon, but very pleasing, was a basket of Anthuriums mixed with Odontioda spikes, the handle entwined with a spike of Oncidium Wentworthianum. Mr. Vickers, of Leicester, was given a Gold Medal, his exhibits being a hand-bouquet composed of Cattleyas and Asparagus, which attracted much attention, as also did his presentation bouquet of Cypripediums and Anthuriums.

In the class for baskets of cut flowers, Mr. Montague Stather, of Hull, was first; Mrs. John Nixon, of Alderley Edge, and Mr. A. Adshead, of Gatley, being equal seconds. For three bouquets, Mr. A. Adshead was first, and Mrs. Vickers second. In all the above, Orchids were utilised with fine effect.

In an interesting competition for a collection of plants in or out of bloom, and of cut flowers, on 100 sq. ft., Sir John Leigh Bart., M.P., took the premier award. In this exhibit Odontoglossum hybrids were very prominent. A. M. Barber, Esq., of Wellington, came second, his group including a well-grown and distinct variety of Vanda suavis, as well as an equally fine variety of Cattleya Hardyana. E.C.

DENDROBIUMS.—The secret of flowering to perfection Dendrobiums of the nobile section lies in the treatment given the plants after the season's growth is completed. Flowers are only produced when the pseudo-bulbs are properly ripened by giving, during the autumn months, a free ventilation and abundant light, this treatment being brought on gradually after the heat and humidity of the growing season. If the plants are kept warm and moist during the autumn months, most of the buds on the sides of the stems will turn into young growths, and although these are useful for propagating rare varieties, it is flowers that are really required. One sometimes sees plants that have been dried so severely that the bulbs are very much shrivelled, which is a great mistake, for no such drastic treatment is needed. Water should be applied in quantities just sufficient to maintain the pseudo-bulbs in a plump condition. A winter temperature of 50° degrees is sufficient for the nobile section.

CYPRIPEDIUM H. BALLANTINE.

THE elegant Cypripedium figured on this page is a primary hybrid, that is, it results from the first crossing of two species. In this case they are C. purpurpatum and C. Fairrieanum. The former is rarely seen in cultivation, but is characterised by the vertical lines of brown-purple on the dorsal sepal as well as by the rich purplish-crimson colour of the lateral petals. C. Fairrieanum is one of the prettiest of Cypripediums and

CYPRIPEDIUM H. BALLANTINE.

has distinctive qualities in the drooping nature of its petals. It will be noticed that these specific characters are strongly inherited in the hybrid. Cyp. H. Ballantine first appeared in August, 1890, when it was exhibited at the Royal Horticultural Society, and awarded a First-class Certificate. Cypripediums are among the easiest of Orchids to cultivate, and well reward the amateur with flowers possessing considerable elegance, as well as by being produced mostly in the dull autumn months. They will withstand a foggy atmosphere better than any other genus, and most of them succeed well in vineries, or along with other greenhouse plants.

CULTURAL NOTES.

By J. COLLIER, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

THE month of October usually varies a great deal as regards climatic conditions, consequently it is important that every precaution should be taken against sudden falls in the temperature of the external air, as frequently sharp morning frosts make an appearance without the slightest warning. This might cause the temperatures of the houses to fall below the normal, on such occasions no watering or damping down should be proceeded with until the right temperatures are reached, as a cold moist atmosphere is invariably the cause of spot and disease appearing in many kinds of Orchids. It is safer to err a trifle on the warm side at night rather than to run the risk of a low temperature in the morning; a little extra fire-heat may be accompanied by more ventilation. Careful watering is an important factor in Orchid culture, especially at this season. Plants that are developing flower spikes should not be allowed to suffer from drought, neither should those that are growing freely, but plants that are completing their season's growth should be afforded just sufficient to keep their pseudo-bulbs plump. Every precaution should be exercised to prevent the plants from re-starting into growth, but in cases where it cannot be prevented, and plants have failed to rest, they should be given every encouragement to make up these new growths as quickly as possible by moving them into the warmest part of their respective houses. The Cattleya family are usually the worst offenders in this respect.

BRAZILIAN MILTONIAS, such as M. Regnelii, M. Binotii, M. spectabilis, and its variety Moreliana, should be kept rather dry at the roots after passing the flowering stage, just sufficient water should be afforded to prevent any shrivelling of the leaves or pseudo-bulbs. M. Clowesii and M. candida are developing their flower spikes, and as they pass the flowering period should receive similar treatment. These plants are very subject to attacks of red-spider, especially at the present season; as a precaution against this pest, the leaves should be occasionally sponged with a solution of soft soap and tepid water. Plants of Miltonia vexillaria and its hybrids which have been cultivated in the cool house during the summer should now be removed to an intermediate temperature, and placed in a light airy position. During damp, dull weather, the immediate surroundings of the plants should not be kept too moist, as the foliage is then liable to decay. M. Roezlii is now starting new growth and fresh roots are pushing from the base; any necessary re-potting may be done at this period. Water at the roots should be applied sparingly all through the winter months.

LYCASTE SKINNERI in its many varieties, together with such as L. cruenta, L. leucanthe, L. Deppei, and a few others, will soon be finishing

their young growths and forming a quantity of fresh roots. They will still require a liberal supply of water until the new pseudo-bulbs are fully developed. Trichopilias flower at various times during the year, and for that reason their re-potting should be carried out at intervals, just when new roots appear at the base of the new pseudo-bulbs. T. suavis is the handsomest of the species, and is most frequently grown, but T. fragrans, T. coccinea, T. tortilis, and T. sanguinolenta, are all worthy of cultivation. Most of these plants grow best in rather deep Orchid pans, suspended near the roof-glass in an intermediate temperature. But T. fragans thrives best during the summer months on the stage in the cool Odontoglossum house. Whilst growing actively, the plants should be afforded a plentiful supply of water at the roots, and when the season's growth is finished, they should receive less moisture and more light and air to ripen them.

Aerides, Angræcums, and Saccolabiums.—Many of these plants that flowered early in the year will soon have completed their season's growth, and the supply of water at the roots should be reduced gradually. Although these Orchids never entirely cease making leaf growth, it is important that they should be given a short period of rest. When in active growth sufficient water should be afforded to keep the moss on the surface in a green and fresh condition, but from now onwards through the winter months the sphagnum-moss should be allowed to dry to a greenish yellow colour before water is applied. Angræcums that are in full growth, including A. sesquipedale, A. Eichlerianum, and A. pellucidum, still require plentiful supplies of water. A. eburneum is developing its flower spikes, and also requires to be kept moist at the roots.

Oncidiums.—Plants of Oncidium varicosum, O. crispum, and O. Forbesii are pushing their flower scapes, and must not suffer drought at the roots, or the flower buds will drop. These plants produce strong branching inflorescences, which exhaust their energies. Therefore only robust, well-rooted specimens should be allowed to flower; weakly plants should have their flower spikes removed as soon as they appear, and be given every encouragement to grow strong. In no case should the flower spikes be allowed to remain on the plants after the pseudo-bulbs show signs of shrivelling. Oncidium Papilo and O. Kramerianum that are producing a succession of flowers from their slender stems should not be allowed to become dry at the roots at any time; the stems should be removed after three or four flowers have developed. These plants are best grown in shallow Orchid pans or teak-wood baskets, which should be suspended in a light position in the Cattleya house.

Vandas.—Towards the end of the month plants of the tall growing section, which include V. tricolor and V. suavis, may be given attention as to re-potting or affording fresh surfacing materials, as at this time the plants

commence to root freely, and continue to do so all through the winter. Plants that are well furnished with leaves should not be disturbed by re-potting, unless a larger receptacle is needed, but be re-surfaced with new material. Specimens that have lost some of their bottom foliage should be taken out of their receptacles, and if there are plenty of live roots some distance up the stem, so much of the lower part of it may be removed as will bring the lowest pair of leaves, when the plant is again placed into the pot, almost down to the rim. In re-potting, after placing the plants in the pot, place some medium sized crocks around the base, and work sphagnum-moss and small crocks between the roots up to near the rim, finishing off with a surface layer of clean picked sphagnum-moss; secure the stem to a neat stick. After re-potting or top-dressing the plants, no water should be afforded for a few days, then water thoroughly, after which, whenever the surface moss appears dry, a light sprinkling with a rose can will suffice. The plants should be given an intermediate temperature, the leaves and stems should be sponged with a suitable insecticide to cleanse them from dirt and insect pests. Small brown scale insects attach themselves firmly to the foliage, and great care is needed when dislodging them, or the leaves may be damaged. Vanda Kimballiana and the chaste V. Watsonii are developing their flower spikes, and until they are removed it will be necessary to keep the plants well supplied with water, when the flowering period is passed only sufficient will be needed to maintain the leaves in a firm and plump condition.

EXCELLENT ORCHID CULTIVATION IN MANCHESTER.—Some really fine cultural results have been obtained in the well-known collection of S. Gratrix, Esq., West Point, Manchester, and when a selection of flowering plants was staged at the Manchester Orchid Society on September 20th, much praise was bestowed on Mr. J. Howes for his skill in bringing them to such a fine state of perfection. Although the atmosphere of this district is generally considered a poor one for Cattleyas, it is quite evident from the above results that skilful attention overcomes most of the difficulties, for several of the Cattleya hybrids bore as many as four large flowers on the same spike. The whole group formed an object lesson of successful treatment and the production of flowers in their finest state.

THE "ORCHID REVIEW" AS AN ADVERTISING MEDIUM.—One of our advertisers, who recently announced a certain kind of Orchid for sale, informs us that not only was the whole stock of plants completely sold within the month, but as many more again could have been disposed of.

CALEANA MAJOR.

OF the many Orchids beautifully figured by R. D. Fitzgerald in his *Australian Orchids*, Caleana major possesses several interesting features. This species, originally described by R. Brown, in 1810, is found on knolls of ironstone gravel and sandstone ridges, generally close to large gum trees, and in the very poorest of hard soil. It differs from most Orchids by flowering in the heat of the Australian summer (December), and Fitzgerald stated that with its red-brown leaf, wiry stem, red-brown flowers, peculiarity of form, resembling in body, wings and head, a large ant, and its power of suddenly curling its neck and hiding its head within its body, it seems to depart from the vegetable to join the insect world.

In the flower of C. major, the column is expanded so as to form a cup, and the labellum, which resembles the lid of a claret-jug, either covers this cup, or stands up ready to fall and close it. In many ways the flower suggests a trap, and the method of its fertilisation was for a long while a mystery to Fitzgerald. His first experiment was with a blow-fly, hung by a thread and let swing against the column. But the blow-fly was either too restive or, by grasping the cup as well as the lid, prevented its weight from being felt by the labellum. Lady-birds were then tried as being more tractable. One of these insects was induced to climb up a match till it reached the end, when it readily left the wood for the labellum. Immediately the labellum descended and the Lady-bird was fairly caught in the cup. It remained imprisoned for about two minutes, and then forced itself out without fertilising the flower or removing the pollen.

To help nature, and make the flowers more attractive in the proper part, Fitzgerald placed a little honey on the front of the labellums of a dozen flowers, and was soon rewarded by the capture of several flies, only two of which fertilised any flowers. Six hours was the longest time noted for the imprisonment of a fly, but the labellum never rose until the insect escaped.

In 1878, Fitzgerald visited a rocky knoll on which he had found 105 plants, and 127 flowers open at one time. He never saw insects about them, never found one captured, and on very few occasions found a flower closed. Though the flowers had been in bloom from October 20th to December 20th, only four capsules of seed were formed, and on December 30th most of the plants had withered and only a stray flower remained.

BULBOPHYLLUM DISCIFLORUM.—This species was introduced by Messrs. Linden, with whom it flowered in October, 1894. It is a native of Siam, and the sepals are united at the base into a broad flat disc, hence the specific name.

ORCHIDS AT THE GLASGOW FLOWER SHOW.

THANKS to the enterprise of the Glasgow Corporation, to the enthusiasm of Mr. Mathews, the Superintendent of the Glasgow Parks, and the co-operation of the Glasgow and West of Scotland Horticultural Society, the exhibition held in the Kelvin Hall on September 5th, was as great a success as the first show held last year. We are glad to learn that it is intended to make this exhibition an annual event. It will surely become an important one in the gardening calendar. We hope that Orchids will be more largely represented in the future, and suggest that some classes might be advantageously arranged for amateurs to compete for twelve or six Orchids in flower, or even for small groups. There are enthusiastic Orchid amateurs in Scotland who would be glad to exhibit some of their plants.

Messrs. Sanders, of St. Albans, were awarded a Gold Medal for a tastefully arranged group of Orchids edged with Begonia Rex. It contained fine forms of Cattleya Hardyana alba, as well as the beautiful C. Kienastiana var. Sanderæ (Dowiana × Lueddemanniana alba), also Cypripedium leucochilum var. Caledonia, a newly-imported form of much promise, and a two-flowered plant of the handsome Cyp. leyburnense. Cyp. Maudiæ and Cyp. Alma Gevært were at each end. Cattleya Venus atropurpurea and a form of C. Soulange were noteworthy on account of their intensely-deep colour, while Dendrobium Victoria-Regina carried many of its charming slate-blue flowers.

Messrs. Charlesworth & Co. were awarded a Large Gold Medal for a group measuring 20ft. × 6ft. The centre contained fine forms of Odontoglossum crispum xanthotes, with Læliocattleya St. George, Lc. Serbia, Lc. Britannia and Lc. Colmaniana. Among the Cattleyas were excellent varieties of Enid, Hesta and Cowaniæ alba, while Sophrolælia Isabella was very distinct. The Odontiodas included Queen Mary, F.C.C., R.H.S., Brewii var. Nigger, very dark, and Chanticler. Odontoglossums were strongly represented by some fine forms of Dora, eximium, Lilian, the distinct xanthinum, and the lovely Amabilicity. Cypripediums were shown in fine plants of Charlesworthii, Curtisii superbum, Maudiæ, and the scarce Rothschildianum. An interesting plant was noted in Habenaria rhodocheila with flowers of pale cinnamon colour, while Masdevallias of the Chimæra section proved attractive flowers to the numerous visitors.

Mr. D. McLeod, of Manchester, was awarded a Silver Medal for a group of Cypripediums. This exhibit was meritorious in view of the early season. We noted excellent blooms of Gaston Bultel, Germaine Opoix, and other good hybrids.

In the three competitive groups of miscellaneous plants staged in a

circle, Mr. Holmes, of Chesterfield, exhibited Cattleya Harrisoniæ, several finely flowered plants of Oncidium flexuosum, Odontoglossums in variety and Odontioda Gratrixiæ. Mr. Petch, of Great Horton, Bradford, also included some well-flowered plants of Oncidium flexuosum, Cypripediums in variety, including Maudiæ, and Charlesworthii, as well as Cochlioda Nœzliana.

Mr. Peter Mc. Quarrie, gardener to W. H. Coats, Esq., Woodside, Paisley, staged a group in which Orchids were well represented and included the pretty Odontoglossum Phœbe, O. Colossus, O. crispum xanthotes the elegant Cattleya Venus and C. Iris, as well as several showy Odontiodas. Some fine Læliocattleyas, of which Golden Wren, Prince John and Soulange were especially noteworthy, came in for much praise.

SOBRALIA HYBRIDS.

THE following list includes all the Sobralia hybrids so far recorded. Although these plants occupy rather more space than the amateur usually cares to provide, there are frequently to be found suitable places, such as corridors and alongside the walls of tall houses, where they may be placed. Their cultivation is simple, and the flowers are very showy, but, unfortunately, do not last in perfection so long as those in the Cattleya section.

S. Amesiæ (xantholeuca × Wilsoni) was exhibited by Messrs. Sanders at the Royal Botanic Society of Manchester, May 31st, 1895. It bore yellow flowers tinged with lilac and a rose-coloured lip. On June 26th, 1906, it received an Award of Merit, R.H.S., when exhibited by Lieut.-Col. Sir George Holford.

S. Colmaniæ (xantholeuca × Veitchii), first flowered in the Gatton Park collection about the year 1907. A variety shown at the Royal Horticultural Society, August 3rd, 1909, had flowers of a citron-yellow colour.

S. dellensis (leucoxantha × Lowii) was raised in the collection of Baron Sir Henry Schröder, and recorded in July, 1907. The flowers are blush white, with a large amount of yellow on the disc, and a few purple markings in front. A plant in the collection of the late Mr. J. Gurney Fowler had the curious habit of persistently producing flowers with two lips. In 1915, four stems each bore flowers similarly produced.

S. Gatton Lily (Holfordii × Lucasiana) flowered in Sir Jeremiah Colman's collection in 1915.

S. luminosa (Holfordii × Wilsoni), was exhibited by Messrs. Sanders at the meeting of the Royal Horticultural Society held May 5th, 1903.

S. Lyoth (Charlesworthii × macrantha), was raised by Messrs. Charles-

worth & Co., and recorded in 1919. The former parent is considered to be a fine variety of S. Ruckeri.

S. mirabilis (macrantha × Veitchii), was raised by Messrs. Sanders and exhibited by them at the Royal Horticultural Society, May 5th, 1903.

S. roseo-macrantha (rosea × macrantha), was first seen in 1897, when the flowers were described as being large, purple-rose, the sepals and petals margined with white. It was raised by Messrs. Veitch.

S. Siebertiana (Hodgkinsonii × macrantha), appeared in 1908, when it was exhibited by Messrs. Sanders. The large mauve-purple flower had a white throat.

S. Veitchii (macrantha × xantholeuca), received a First-class Certificate, R.H.S., when exhibited by the raisers, Messrs. Veitch, July 24th, 1894. The flower was blush-tinted, the lip flushed with rose-lilac, especially round the margin. In 1918 there flowered at Kew a Sobralia, presumably a wild plant, that was indistinguishable from S. Veitchii, thus strengthening the belief that this latter plant also occurs in the wild state.

S. Wiganiæ appeared in 1892, and is believed to be a natural hybrid between macrantha and xantholeuca, consequently a variety of S. Veitchii. It bore large soft yellow flowers tinged with rose.

ONCIDIUM ORNITHORHYNCHUM.—This pretty species is a native of southern Mexico and Guatemala, where it grows at a considerable elevation. It was originally described in 1815, but did not appear in British gardens until 1836. The specific name is derived from the Greek for bird's beak, in reference to the beaked anther. The variety album first appeared in Mr. John Day's collection at Tottenham in 1873. The panicled scape bears numerous flowers, a little less than an inch across and of rose-lilac colour, except in the variety album, when the only colour is seen in the yellow crest. This species is of easy cultivation and succeeds well in the cool house.

ONCIDIUM MARSHALLIANUM.—The early summer months see this species at its best, for it is then that the much-branched panicles bring forth numerous golden-yellow flowers that frequently measure three inches across. It was introduced by Messrs. Low & Co. in 1865, through their collector, Blunt, along with Oncidium crispum. It is regrettable that no one seems able to cultivate this species successfully for more than a few years. The newly-imported plants yield magnificent floral results, but during subsequent seasons the flowers gradually become less in number and size until at last no spike whatever is produced. An experiment might be made in raising the species from seed under the usual greenhouse conditions.

ROYAL HORTICULTURAL SOCIETY.

September 3rd, 1923.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Pantia Ralli, Stuart Low, Frederick J. Hanbury, H. T. Pitt, C. H. Curtis, E. R. Ashton, T. Armstrong and Gurney Wilson.

AWARDS OF MERIT.

Brassolæliocattleya Tucuman, Claygate Lodge var. (Blc. Cooksonii × C. Rhoda), from J. J. Bolton, Esq., Claygate, Surrey (gr. Mr. S. Lyne). A beautiful hybrid with large flowers of an orange colour tinged with bronze, the broad labellum mottled with crimson and having a golden disc.

Læliocattleya Mrs. Medo, Low's var. (C. Venus × Lc. luminosa), from Messrs. Stuart Low & Co. This attractive hybrid carried a spike of three finely-developed flowers, of yellowish colour and having a bronze-green overtint, the lip well displayed and purple-crimson.

CULTURAL COMMENDATION.

To Messrs. Armstrong & Brown for a superb specimen of Cattleya Iris, the last made bulb bearing a pair of leaves, each 11 inches long and over 2½ inches broad. The spike bore ten richly-coloured flowers.

Messrs. Stuart Low & Co. were awarded a Silver Banksian Medal for an exhibit containing many hybrids of Sophronitis grandiflora. Among them were Sl. Orpetii, a nice example with six rose-purple flowers, Sc. Sylvia (C. Hardyana × Sc. Doris), apricot-yellow with crimson lip, Sc. Faboris (C. Fabia × Sc. Doris), with four flowers of bronze-red tint, Sc. Blanche, red-scarlet, and Slc. Argonaut (Lc. Tunis × Sl. Orpetii), rich purple. Other noteworthy plants were Cattleya interexta alba, with a spike of three large flowers, C. Iris var. Buttercup, with six yellowish blooms, and Cypripedium Maudiæ. Angræcum articulatum was in fine form, and also Cirrhopetalum ornatissimum.

J. J. Bolton, Esq., Claygate Lodge, Surrey, exhibited three specimen plants of Cattleya Hardyana alba, one bearing a spike of four flowers, the sepals and petals pure white and the labellum bright purple. In addition to the plant of Blc. Tucuman that received an award, there was a pleasing example with three finely-coloured flowers. Dendrobium formosum carried a dozen blooms and made an attractive object.

Messrs. Armstrong & Brown also exhibited Læliocattleya Golden Wren (C. iridescens × Lc. Thyone), with four flowers of bronze-gold colour, and another variety with golden-yellow sepals and petals and a crimson lip. Cirrhopetalum pulchrum, C. Fascinator and Bulbophyllum barbigerum were all in excellent condition, as also were Cœlogyne speciosa alba and the pretty Trias disciflora.

September 18*th*, 1923.

Members of the Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Fred. K. Sander, Gurney Wilson, J. E. Shill, H. G. Alexander, C. J. Lucas, E. R. Ashton, H. T. Pitt, R. Brooman-White, Pantia Ralli, A. Dye and J. Wilson Potter.

AWARDS OF MERIT.

Cypripedium Godefroyæ, Gatton Park variety, from Sir Jeremiah Colman, Bart., Gatton Park, Surrey. A large flower of cream-yellow colour effectively marked with maroon-purple.

Læliocattleya Aureole var. Renown (C. Iris × Lc. luminosa aurea), from Pantia Ralli, Esq., Ashtead Park, Surrey. A very beautiful combination of the colourings of both parents, the flower being of a golden-orange tint with the lip reddish-crimson.

Vuylstekeara Medea (Oda. *Zenobia* × M. Charlesworthii), from Messrs. Charlesworth & Co. A novelty in which the two flowers of medium size were of bright crimson-red colour, the lip rose coloured at the apex and prettily spotted.

GROUPS.

Messrs. Sanders were awarded a Silver Flora Medal for an attractive group containing at the back several finely flowered examples of Oncidium Marshallianum, cultivated on teak-wood rafts. Among the Cypripediums were elegant forms of Maudiæ, Fairrieanum, Germaine Opoix, and several of Godefroyæ. Cattleya Meteor (Dowiana × Comet) bore richly-coloured flowers and C. Thebes var. Britannia had a distinct bronze tint on the sepals and petals and a crimson lip. In the centre was Miltonia spectabilis var. conspicua, with a rose-purple centre to the lip, and a well-flowered plant of M. Phalænopsis. Cœlogyne Massangeana carried pendulous spikes of many flowers, and several excellent varieties of Cattleya Hardyana received much appreciation.

H. T. Pitt, Esq., Stamford Hill, was awarded a Silver Banksian Medal for a pleasing exhibit. It comprised finely-flowered examples of Cypripedium Triumphans, the pretty Maudiæ and the white Boltonii. Miltonias were represented by St. André and Cogniauxiæ (Regnelii × spectabilis), and Brassocattleyas by Corallina, very pretty. Cirrhopetalum picturatum and Slc. Isabella, Pitt's variety were in excellent condition. Cyp. Thaville (Thalia × Earl of Tankerville) proved very attractive.

Messrs. Stuart Low and Co. received a Silver Banksian Medal for an exhibit containing several well-flowered plants of Odontoglossum grande, the elegant Dendrobium superbiens the pretty Sigmatostalix radicans, and

Miltonia Binotii (candida × Regnelii) with a rose lip. Among the Cypripediums were pleasing varieties of Maudiæ, gigas and mirabile, while Cattleya Iris and C. aurea, as well as the pretty Lælia Dayana delicata, were all well-flowered. Brassolæliocattleya Thyone var. Joyce Hanmer bore a couple of yellow flowers, the lip rose-purple.

Messrs. Cowan & Co. staged some grand examples of Cattleya Hardyana alba, one with four large flowers on the spike, also Cattleya Hassallii alba, and C. Thebes (Adula × aurea) with yellow sepals and petals and crimson lip. The Læliocattleyas comprised Soulange and Nanon, the latter with broad petals of an unusual bright purple colour. In the centre was a superb variety of Blc. Muriel with too very large flowers of a uniform mauve-pink tint, the disc of the lip orange-yellow.

Messrs. Charlesworth & Co. staged Cattleya Hesta var. excelsa, with a spike of six well-developed flowers, white with violet-purple mottling on the lip. Also Odontoglossum crispum var. Jean, a large variety of the Doinii type and with the petals toothed at the edge.

Sir Jeremiah Colman, Bart., exhibited Spathoglottis Zebrina, a wide selection of varieties ranging from white to golden-yellow, some with rose tinting on the lip.

Baron Bruno Schröder, Englefield Green, Surrey, showed a cut-spike bearing eight flowers of Læliocattleya Golden Glow (Sunrise × Venus) of a delightful golden-apricot colour.

MANCHESTER ORCHID SOCIETY.

August 23rd, 1923.

MEMBERS of the Committee present :—A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, A. G. Ellwood, J. Evans, J. Howes, A. Keeling, D. Losh-Thorpe, D. McLeod, E. W. Thompson, J. Whitham, and H. Arthur (secretary). Messrs. C. Parker and J. Thrower were invited to sit with the committee.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), was awarded a Silver Medal for a group composed principally of Cattleyas and hybrids; they included C. Abekeniæ var. Amber, C. Hardyana alba, C. Gaskelliana alba, and C. Astron, as well as Lc. Zeno var. splendida, Lc. Litana var. Golden Dawn, and Lc. Soulange. Brassocattleya Iris was also staged, and the Cypripediums embraced Daisy Barclay, Rossettii, and Gowerianum var. Gratrixianum. Among the Odontoglossums were O. crispum var. Sunspot and O. c. Snowdrift.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group to which a Silver Medal was awarded. It included Cypripedium callo-

Rothschildianam, C. Kubele magnificum, C. Ernest Read, as well as the pretty Dendrobium Victoria Regina and the graceful Oncidium incurvum.

Messrs. Cypher & Sons, received a Silver Medal for a group of fine Cypripediums, of which Gowerianum magnificum, C. Felicity and C. Rossettii were in excellent form. Odm. crispum xanthotes and the attractively coloured Epidendrum vitellinum were also staged.

Messrs. Sanders exhibited Cattleya Prince John, C. Acis var. luminosa and C. Kienastiana var. Sanderæ. Among the Cypripediums were the punctatissimum and leucochilum varieties of C. Godefroyæ, while Dendrobiums included D. atroviolaceum and the rare D. asperifolium.

Messrs. Keeling & Son, staged Cypripedium Nandii, Cyp. Alma Gevært, and Cyp. W. R. Lee. Other Orchids were Cattleya triumphans and Lc. Carmencita aurea.

Mr. John Evans, Colwyn Bay, staged Cattleya triumphans var. Evansiæ and Lc. Dodona.

Messrs. Cowan & Co., exhibited Brassocattleya Muriel var. Perfection and C. Diana var. Brilliant, as well as the elegant Miltonia Reine Elizabeth.

Messrs. Charlesworth & Co., staged a hybrid between Cattleya Dupreana and C. Princess Royal, also another between Odm. Harryanum and Oda. Zenobia.

FIRST-CLASS CERTIFICATES.

Cypripedium Daisy Barclay, Gratrix's var., a splendid form, very distinct, the large flower brightly marked, from S. Gratrix, Esq.

Cattleya triumphans var. Evansiæ (Rex × aurea), sepals and petals rich ochre-yellow, lip crimson with orange lines, from Mr. J. Evans.

Læliocattleya Dodona, flower of fine formation, sepals and petals crimson-purple, lip of richer shade and with orange lines, from Mr. J. Evans.

Brassolæliocattleya Muriel var. Perfection, an immense flower of perfect shape, the sepals, petals and lip deep rosy-mauve, the throat deep yellow, from Messrs. Cowan & Co. A Silver Medal was also awarded to this plant.

AWARDS OF MERIT.

Læliocattleya Zeno var. splendida, Lc. Litana var. Golden Dawn, Cattleya Abekeniæ, Odontoglossum Felicity, and O. crispum var. Sunspot, from S. Gratrix, Esq.

Cattleya Diana var. Brilliant (Sibyl × aurea), from Messrs. Cowan & Co.

CULTURAL CERTIFICATES.

Mr. A. Burns, for Cypripedium callo-Rothschildianum, Cyp. Kubele magnificum and Dendrobium Victoria Regina.

THE ORCHID REVIEW.

VOL. XXXI] NOVEMBER, 1923. [No. 365.

NOTES.

R.H.S. JUDGING RULES FOR GROUPS.—In order to facilitate the judging of Orchid groups at the recent Holland Park Show it was arranged that the maximum number of marks that could be given to any one group was 100, divided according to the following scheme: (1) Cultivation and quality of the plants, 40; (2) Rarity and variety of the plants, 30; (3) General arrangement of the group, 30. This scheme worked well and will probably be adopted for all important shows of the future.

PRINCE SHIMADZU.—As soon as news reached England of the great earthquake in Japan, much concern was felt for the safety of Prince Shimadzu, who was at first reported as amongst those killed. Official intimation has lately been received that he is alive and in good health. This is welcome news to his many friends, for during the period of his stay in England Prince Shimadzu was a regular attendant at the meetings of the Royal Horticultural Society's Orchid Committee, and also visited several of the principal collections.

VISCOUNT SOHMA.—Another distinguished Japanese visitor has been warmly welcomed by the English Orchid growers. He is Viscount Sohma, of Tokio, a keen scientific worker and raiser of Orchids in the Imperial Botanic Gardens at Shinjik, Tokio. Evidence of the interesting work been carried on their exists in a large number of coloured drawings of Orchids which he has brought with him to this country, and which, when seen by members of the R.H.S. Orchid Committee, were very favourably commented upon. Viscount Sohma has already visited several of the principal amateur and trade collections, and has been invited to sit with the R.H.S. Orchid Committee.

SARCOCHILUS SPECIES IN AUSTRALIA.—The greater number of the little Orchids to be seen clinging to the branches of trees in the dense cedar brushes and in the mountain scrubs belong to this genus. The botanist

in search of them can hardly expect to see the little plants themselves perched amongst the branches, but he readily catches sight of the slender roots that traverse trunk and branch to the slightest twig, and following them to their source he perceives the little epiphyte itself, from the centre of which depend spikes of flowers, the perfume of which spreads far and wide under the dense foliage of fig or sassafras. — R. D. FITZGERALD, in *Australian Orchids*.

SALE OF THE ST. MARY'S COLLECTION.—Messrs. A. Keeling & Sons have received instructions to dispose of the important collection of Orchids formed by the Rev. J. Crombleholme, St. Mary's, Accrington, Lancs., who is changing his residence. This collection is noted for the fine series of choice Cypripedium hybrids, most of which have been raised by the owner. Further particulars will be found in our advertisement pages.

DISA TENUIFOLIA.—Bolus states that this is one of the commonest of the South African Orchids, and has a wide vertical range extending to the very summit of Table Mountain. The colour of the flowers is a bright yellow. Large specimens with six and eight flowers are very handsome, but are rarely seen ; the smaller forms are abundant enough, and stud the mountain-tops in the dry mid-summer with their gay golden stars (*Orchids of the Cape Peninsula*).

TEAK-WOOD RAFTS.—There are some Orchids that on account of their straggling habit of growth succeed best when secured to teak-wood rafts with the addition of a small quantity of fibre and moss. A few of these plants, such as Bulbophyllum virescens, grow best when the rafts are suspended like trays in horizontal style, but others, having a climbing or ascending mode of growth, and of which Oncidium Leopoldii and Maxillaria Gautheri are examples, require the rafts to be placed in a vertical manner. The usual method of construction is for several teak-wood bars to be fastened together by shorter ones placed at right angles, the compost being packed in between the bars and the plant secured by means of copper wire. An improvement on this latter method can be seen in the collection of B. J. Beckton, Esq., Irlams-o'-th-Height, Manchester, were several Orchids are cultivated on a new form of raft, contrived by his able gardener, Mr. W. A. Stewart. It consists of additional long bars placed on the back of the raft, parallel with the other long bars, but separated from them by about an inch, which space is filled up with a larger amount of compost than could be applied in the old method. All the plants so cultivated appear to benefit greatly by this extra nutriment and moisture, Phalænopsis being especially noteworthy in this respect.

SARCOPODIUM LYONII.

ONE of the most conspicuous characters that separates the genus Sarcopodium from Dendrobium is the contraction of the stems into pseudo-bulbs. The accompanying illustration is of Sarcopodium Lyonii flowering in the collection of Dr. Heinrich Miller-Aichholz, of Vienna, and

SARCOPODIUM LYONII.

although the plant is labelled Dendrobium acuminatum its habit clearly denotes that it belongs to the genus Sarcopodium. For many years Sarcopodium was considered a section of Dendrobium, but it is now regarded as a distinct genus.

The true Sarcopodium (Dendrobium) acuminatum was described in 1905 (*Ames Orchid. i. p.* 86), from dried specimens collected on Mt. Mariveles, in the province of Bataan, Philippine Islands, the colour of the flowers being given as white and yellow. It was shortly afterwards figured (*Ames Orchid. ii. t.* 17), and in an accompanying note Prof. Oakes Ames remarks that : "In general aspect the plants resemble Dendrobium cymbidioides very closely and might pass as luxuriant forms of that species, if it were not for the very different lip and the acuminate sepals and petals. The plants grow in a region where for a part of the year the air is extremely humid and at other times extremely dry."

In 1907 what was supposed to be the same species was figured from a specimen collected in the same province by Mr. W. S. Lyon, and in 1909 Mr. Lyon's plant flowered in England and received a First-class Certificate when exhibited at the Royal Horticultural Society. Both appeared under the name Dendrobium acuminatum, but the flowers, instead of being white and yellow, were rosy-carmine with deep wine-red on the labellum. It was then discovered that these represented a different species ; in fact, they were Sarcopodium (Dendrobium) Lyonii, a new species described in 1908 by Mr. Oakes Ames as "differing from acuminatum in its roughish pseudobulbs which are minutely pitted when dry, in its larger leaves, shorter pedicels, longer floral bracts and large flowers, which are described by the collector as being rosy-carmine shading to wine-red on the labellum."

The issue of *Addisonia* for June, 1923, contains a coloured plate of Sarcopodium Lyonii, prepared from a plant that flowered in the New York Botanical Garden in March, 1919. In its native home this species is found at an altitude of about 2,000 feet and appears to be restricted to a narrow altitudinal belt. In the above mentioned publication it is stated that "under cultivation S. Lyonii has not proved to be a free growing species. In fact, Mr. Lyon in his early attempts to cultivate it at Manila concluded that at sea level it was less tractable than S. acuminatum and with difficulty kept alive."

Although members of the Sarcopodium genus require a high temperature during their season of activity, several English growers have been successful in the cultivation of S. Lyonii. Notable examples were seen at the Chelsea Show of 1922, when Sir Jeremiah Colman exhibited four plants, the largest carrying a total of fifty-five flowers, and at the same event in 1923, when Messrs. Armstrong & Brown received a Cultural Commendation for a superb plant bearing five many-flowered spikes.

Regarding the genus Sarcopodium, which consists of about twenty species, Lindley stated that it is "intermediate between Dendrobium and Bulbophyllum, having the large flowers of the former, and the peculiar creeping habit of the latter. The species agree with Dendrobium in having

four nearly equal pollen-masses, and a hornless column; but they have coriaceous, not thin half-transparent flowers, and a tough leathery lip, enlarged not contracted at the base. If they had a caudicle and gland to their pollen-masses, they would almost be Asiatic Maxillarias. Their flowers form neither horn nor spur, but are simply inflated and expanded at the base of the sepals."

THE GENUS ZYGOPETALUM.

By C. H. LANKESTER, CARTAGO, COSTA RICA.

THE article under the above heading in the June issue of the *Orchid Review* (p. 182), is a most interesting discussion of the group, which might have included mention of the other genera assigned to it, one of which, at least, Chondrorhyncha, has two or three species worthy of cultivation and most delightfully fragrant.

As far as Costa Rican species are concerned, four only of the group have spectacular flowers: they are Warscewiczella aromatica, W. Wendlandii, Pescatorea cerina and Huntleya Burtii. Of these W. Wendlandii is a very hardy species and persists in practically open country, in hedgerows or the strips of woodland left in pasturelands, at elevations of 5,500 to 6,500 feet on the Southern slopes of Irazu. Usually, one finds it rooted into the deep accretions of humus on the bolls of old polled Erythrinas, and the like, often in company with Odontoglossum Schlieperianum, Nephrolepses and Polypodiums. All the species here prefer an abundant and rich rooting medium, though the Huntleya (which I have not seen in nature for twenty years), climbs the trunks of large forest trees in districts of exceptionally heavy rain-fall, not so favourable to the formation of humus.

In general, they require moisture and plenty of shade. Pescatorea cerina and Warscewiczella aromatica are very hard to cultivate successfully away from their natural environment. All approve of basket culture and resent being broken up. The few specimens of Warscewiczella that I saw in England were very small fragments and almost unrecognisable. Probably good strong clumps of these plants planted in baskets, with the base well built up with fern rhizomes, and then a loose compost of oak leaves worked into the roots would secure good growth and abundance of bloom. The carpets of leaves and moss in the New Forest should be splendid for these plants. Most of them, coming as they do from super-saturated forest regions, have extremely tender leaves, travel badly, and seem also subject to fungus and sun-scorch, loosing their leaves very readily. The two Warscewiczellas have supremely beautiful flowers. W. aromatica, which has a delightful perfume, comes from lower levels of 2,000 to 3,500

feet, it is a true forest plant and much less hardy. Pescatorea cerina and Huntleya Burtii are comparatively rare.

Like the correspondent in Assam (p. 162), I have a house, recently erected, of somewhat similar design, not yet sufficiently tested, in regard to shading, for fitness to the Cartago climate, and I hope to exchange plants with him. Our costal species would probably be at home there, though they have never experienced either of the extremes of temperature he mentions. Our shade maximum is probably 74° and minimum 52° at 4,800 feet, though neither of these figures are frequently attained. Conditions here are favourable to most Colombian plants. Cattleya Trianæ and C. Warscewiczii do very well. I have failed with the Venezuelan Cattleya Lueddemanniana and C. Mossiæ, and C. labiata does not do really well. The majority of hybrids are quite at home, once they become established, and a large range of other genera may be grown successfully with them.

ORCHID CULTURE IN COSTA RICA.—From C. H. Lankester, Esq., Cartago, Costa Rica, we have received a photograph of a large shed well-filled with Orchids, and having the roof constructed of laths so as to admit sufficient light for the well-being of the plants. In an accompanying letter, Mr. Lankester says: "This shed is an experiment in Orchid growing in Cartago. I hope it will look better when the longitudinal roof-wires are well laden with hanging baskets. Our usual period for rainy weather has this season been exceptionally dry, and watering has been necessary. The article on *Zygopetalums* (p. 182) interested me. I should have thought these plants presented little difficulty in culture at home. I am sure many of them would do well in an ordinary fern conservatory. But certain Orchids are baffling plants, and it must be confusing when occasionally a member of a genus usually growing at high and moist altitudes is found on the coast. For instance, the Warscewiczellas of Panama. A notable example here is Odontoglossum Krameri, which is found so low as 1,000 feet, and should be grown with Cattleya Dowiana. That also is a rather difficult, but not exceptional, plant to cultivate; it has the deep zonal range of from sea-level to 4,200 feet."

SCUTICARIA STEELEI.—This species was introduced from Demerara in 1836 by Mr. M. Steele, and was again found by the brothers Schomburgk during their exploration of British Guiana in 1840-44 growing on the banks of the rivers Essequibo and Demerara on the trunks of trees, flowering in June and July. The stems are as thick as an ordinary writing pencil, about two inches long, the pendulous leaves being as thick as a swan's quill and often exceeding two feet in length. The flowers are nearly three inches in diameter, light yellow spotted with red-brown.

ORCHID CULTURE IN THE UNITED STATES OF AMERICA.

A GREAT surprise awaited my visit to the establishment of Mr. Thomas Young, Junr., Bound Brook, New Jersey, for there I saw the first trade collection of Orchids grown for cut-flowers only. Some idea of this collection may be gathered from the areas of the structures containing the plants. There are four houses each 500ft. × 35ft.; fourteen each 250ft. × 12ft.; two each 250ft. ×35ft.; and two each 100ft. × 12ft. As regards the number of plants, one is simply bewildered. Imagine, if possible, a stock of nearly 30,000 Cattleya Trianæ, 12,000 C. Mossiæ, 6,000 C. Warscewiczii, 4,000 C. Gaskelliana, several hundred plants of C. Mendelii and a large batch of C. Percivaliana.

In addition to the above, I noted very large batches of home-raised hybrids, such as C. armainvillierensis, 3,000 C. Fabia, 100 C. Fabia alba, 1,000 C. Hardyana alba, and 500 C. Maggie Raphæl alba, the last four being great favourites for market work, and commanding good prices. Other useful hybrids, but not home-raised, include 500 C. Enid alba; while C. Clotho, C. Dupreana, C. Tityus and C. Octave Doin are all numerously represented. In a special house set apart for choice varieties, I noticed a magnificent plant of C. Mossiæ Reineckiana var. T. Young, a gigantic form bearing nine flowers, very choice and handsome.

Of Læliocattleyas, Mr. Young has raised large batches of Aphrodite and Canhamiana alba, some of which were in flower at the time of my visit, as well as several others of the spring-flowering type, as they are in great demand for the Easter trade, which is enormous in the large cities of America. Of Brassocattleyas, I saw very useful batches of the older types, such as Digbyano-Mossiæ, Mad. Chas. Maron, heatonensis, and others of the same section. But of late years a demand has sprung up for better shaped flowers, so such varieties as Bc. Mars, Cliftonii, Jupiter and Ilene have been added to the stock. They all appear to revel in the "home" of Cattleyas and are making enormous growths.

One entire house has been set apart for the cultivation of Oncidium splendidum, with the companionship of Phalænopsis amabilis and P. Schilleriana suspended from the roof. Mr. Young prefers growing Phalænopses fairly cool, in order to encourage the production of larger flowers. Similar plants are grown in other houses in order that the flowering season may be prolonged by slight differences in the temperatures, but I noticed that the cooler grown plants were sturdier.

A portion of a corridor contains about 2,000 very fine plants of Dendrobium Phalænopsis Schrœderianum, growing in pots on the staging. Very large batches of Læliocattleya callistoglossa, Lc. Dominiana, Lc. Colmaniana, Lc. Barbarossa and Lc. Britannia are grown for their rich

colour; they appear to be great favourites with the florists and the flowers are readily sold. A division of one house is set apart for Cymbidiums, and though C. Pauwelsii predominates, many of the newer hybrids in this genus have been added of late years. A house 100ft. × 12ft. is set apart for Cypripediums. The principal varieties grown are Maudiæ, gigas var. Corndean Hall, both in large quantities, also a few Gaston Bultel, Germaine Opoix, Priam, Thalia and Olivia. There are also some hundreds of C. insigne Sanderæ and C. insigne var. Harefield Hall growing in the coolest end of this house, as well as numerous others of more recent introduction.

The portion of this establishment set apart for raising Cattleyas and Læliocattleyas from seed is very up to date, and the progress made in this direction made me gasp, for I saw them in many thousands, from those sown in the spring of this year to plants in five-inch pots. Quite a number of the larger plants were showing flower-sheaths for the first time. I did not like to be too inquisitive as to the parents used, but as I know that Mr. Young is of the modern school and of late years has purchased some fine hybrids for use as parents, I am convinced he will have some surprise packets for us in a few years' time. He assures me that his clients were always asking for better things and willingly paid a price commensurate with their special merits.

With regard to shading the houses, I noticed that some had lath-roller blinds, whilst others had a permanent white shading of paint. On enquiring the reason, Mr. Jones, the manager, replied that he did not notice any difference in the results, although the white spray was less expensive to apply. The plants certainly looked equally well under both conditions, and many of them were making two growths, so the suitability of both methods was proved.

Some idea of the American demand for Cattleya flowers at Easter may be gained when I give Mr. Jones' figures for this establishment alone; more than 10,000 flowers of Cattleya Mossiæ were despatched to New York for distribution, also several hundreds of C. Schrœderæ and late-flowering C. Trianæ, as well as many hybrids.

The heating of this vast nursery is by hot-water, with a special turbine arrangement in the return main to force the water back again quickly to the boiler. Other provision for steam heating is installed to assist when necessary. Mr. Thomas Young is looked upon in the floral world of the States as being the Gardenia King, a separate department of this huge establishment being devoted to tens of thousands of these plants, which are grown in beds for one year only. A third section of the nursery is devoted to Roses, which are also grown on a colossal scale.

The daily gathering of flowers had taken place before my arrival, but on being invited to visit the ice chamber I found myself in an atmosphere

of delicious perfume. After grading, all the flowers are deposited here for some hours previous to their final departure, ultimately to grace many of the stately homes of wealthy Americans, or perhaps to adorn the ladies of fashion. It may be that some find their way to the sickroom where they cheer the suffering patient. Certain it is that the cut-flower trade is a great institution, and the American slogan "Say it with Flowers" has caught on tremendously across the water. Both Mr. Young and his manager, Mr. Jones, treated me with great kindness and hospitality, and I left Bound Brook greatly impressed with my first visit to a trade establishment in the U.S.A. A.G.E.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Count Hayashi ...	C. Dietrichiana × Bc. Mad. Chas. Maron ...	Flory & Black.
Brassocattleya Gallieni	Bc. Marne × C. Dowiana aurea	Maron.
Brassocattleya Viscount Sohma ...	C. Mira × Bc. Ilene	Flory & Black.
Brassolæliocattleya Metacomet ...	Bl. Helen × Lc. Berthe Fournier	Clement Moore.
Brassolæliocattleya Shrewsbury ...	Blc. Veitchii × C. Rex	Sanders.
Cattleya Draco	Dupreana × Enid	McBean.
Cattleya Katadin	Empress Frederick × Lueddemanniana ...	Clement Moore.
Cattleya Lilian Sander	Gaskelliana × Intertexta	Sanders.
Cattleya Meteor	Comet × Dowiana	Sanders.
Cattleya Queen Venus	Venus × Queen of Sheba	Sanders.
Cattleya Sagamore	Empress Frederick × Lawrenceana ...	Clement Moore.
Charlesworthara Rajah	Miltonioda Ajax × On. monachicum ...	Charlesworth.
Læliocattleya Alceste	C. Warneri × Lc. luminosa	Charlesworth.
Læliocattleya Eleganta	Lc. elegans × C. Atalanta	C. J. Lucas.
Læliocattleya Epic	Lc. Epicaste × C. Lord Rothschild ...	Sanders.
Læliocattleya Illuminata	C. Fabia × Lc. Hyeana	Flory & Black.
Læliocattleya J. G. Apcar	Lc. Geoffrey × L. purpurata	C. J. Lucas.
Læliocattleya Morvyth	Lc. St. Gothard × Lc. Lustre	Sir G. Holford.
Læliocattleya Nanaganset	L. nigrescens × C. Hardyana	Clement Moore.
Læliocattleya Oxfordensis	Lc. callistoglossa × C. Tityus	Pantia Ralli.
Læliocattleya Sachem	Lc. Charlesworthii × Lc. luminosa ...	Clement Moore.
Læliocattleya Vega	Lc. Soulange × Lc. Rubens	McBean.
Odontoglossum Bedouin	illustrissimum × Dusky Monarch	Charlesworth.
Odontoglossum Clonius	Aquitania × The Czar	Charlesworth.
Odontoglossum Matador	ardentissimum × Georgius Rex	Charlesworth.
Odontonia aurata	M Bleuana × O. Wilckeanum	Charlesworth.
Vuylstekeara Medea	Oda Zenobia × M. Charlesworthii ...	Charlesworth.

CORRECTION:—Odontioda cuprea, page 280, should read Odontioda Cromer.

PAPHINIA CRISTATA.—Most of the plants of this species that were received a few years ago seemed to have died, hence those remaining should be well cared for. It was first cultivated in 1836 by Mr. Knight, the predecessor of Messrs. Veitch at Chelsea. The flowers are three to four inches in diameter, of yellow and chocolate-brown markings, the column having a tooth-like auricle on each side of the stigma.

ORCHIDS AT STONEHOUSE, HASLINGDEN, LANCS.

ANYONE paying a visit to Haslingden, Lancashire, is generally reminded of the fact that it is the highest market town in England, for it stands at an altitude of nearly 900 feet. But to other people a much more interesting feature of this place is the noted Orchid collection of Harry Worsley, Esq., at Stonehouse, a keen amateur, who for several years past has been acquiring a large number of fine Odontoglossums and other cool-growing Orchids.

The range of glass houses is well adapted for the cultivation of these plants, and modern arrangements are everywhere to be seen. After passing

ODONTIODA OPAL, F.C.C., R.H.S., MARCH 14TH, 1922.

through the spacious entrance corridor, one comes to a large span-roofed house, the central staging of which is filled with about 500 choice Odontiodas, all in a vigorous condition. Although it is a matter of regret that the parentage of the well-known Oda. Coronation has never been ascertained, two beautiful varieties of it exist here, and are known as Victory and Orchidhurst, the latter possessing a strong constitution. Good use of Coronation has been made by the hybridists, and among the seedlings raised from it are Colinge, of which several beautiful varieties are here grown, and Antinous (Oda. Coronation × Odm. exultans), probably the finest yet seen as regards richness of colour, the inner half of each segment being of dark reddish-scarlet and the outer areas deep rose-

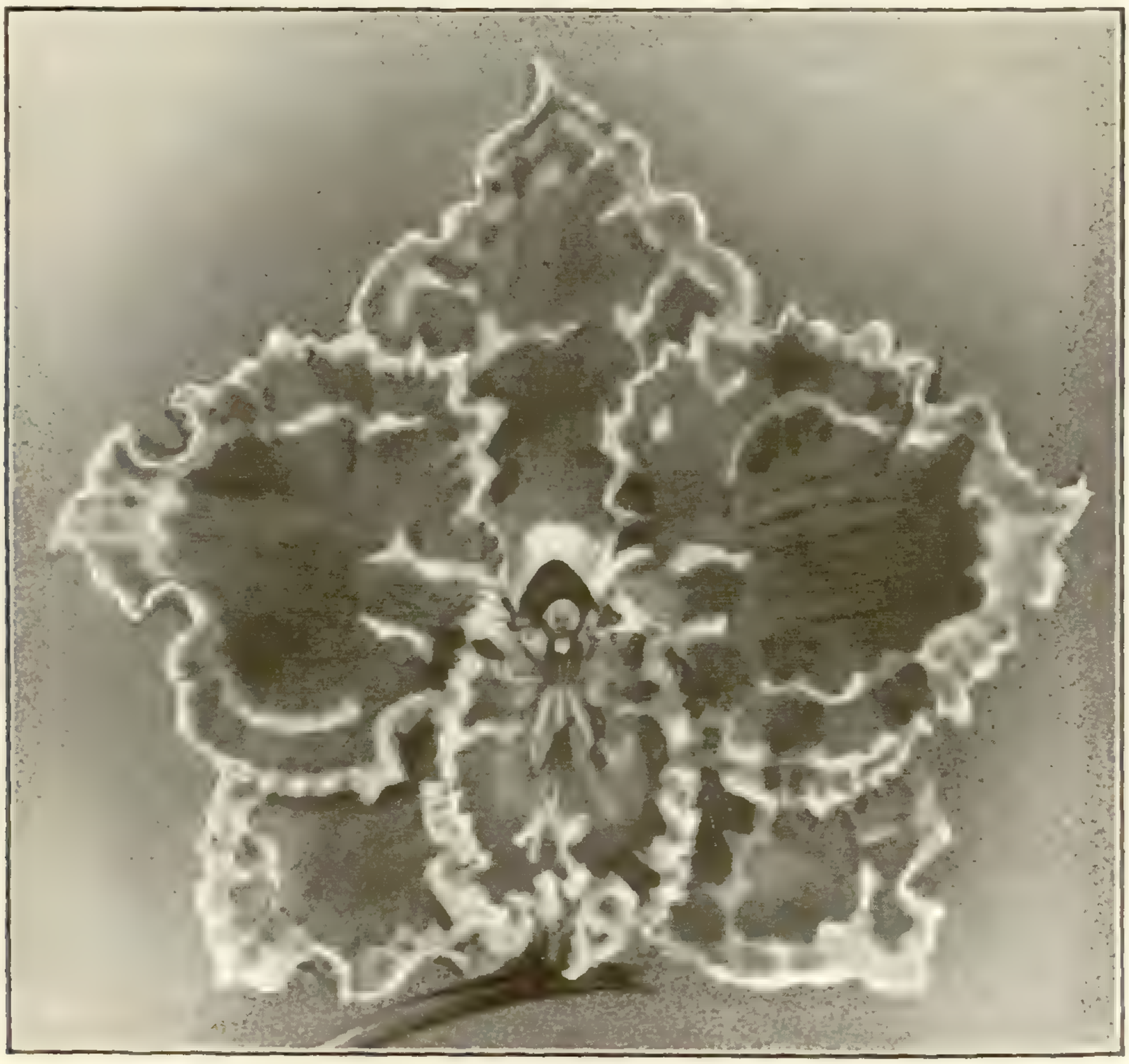
crimson; it received an Award of Merit, R.H.S., January 1st, 1922. A similar award was given to Oda. Venus (Oda. Coronation × Odm. Aglaon), a delightful hybrid bearing a large flower with bold scarlet blotching, and round the edge of the segments a rose-tinted zone, making a fine effect. One of the most artistically coloured of the Odontiodas is here to be seen in Pyrrhus; it was obtained at the sale of the late Mr. W. R. Lee's

ODONTOGLOSSUM CRISPUM MRS. HARRY WORSLEY.

collection, and yields flowers entirely suffused with various tints of bright claret-purple colour and with a rose lip.

The high-class nature of Oda. Opal is proved by the First-class Certificate awarded to it by the Royal Horticultural Society on March 14th, 1922, the flower being rose-tinted and blotched with crimson. Another choice hybrid in this house is Oda. Windsor, which obtained a similar certificate on March 12th, 1918, the flower being of a bright red colour evenly suffused throughout all the segments, except the apex of the lip and the crest, which are both orange-yellow. A charming flower is to be seen

in Oda. Madeline var. Ruth, obtained by crossing Oda. Charlesworthii with Odm. crispum, and others in Mars, Joan and Mira. Not only is Oda. Harry Worsley well worthy of the name it bears, but the plant never seems tired of growing, and at present it is finishing off one of its finest growths. Suspended from the roof in shallow pans are several strong plants of Odontoglossum citrosmum, a Mexican species that is as popular to-day as at any time in its history; Mr. Worsley is particularly fond of the rose-tinted varieties. Pleione lagenaria also does well under somewhat similar conditions. On the side staging of this house numerous other cool-growing species and hybrids are grown. Mention may be made of Odm. Aphrodite

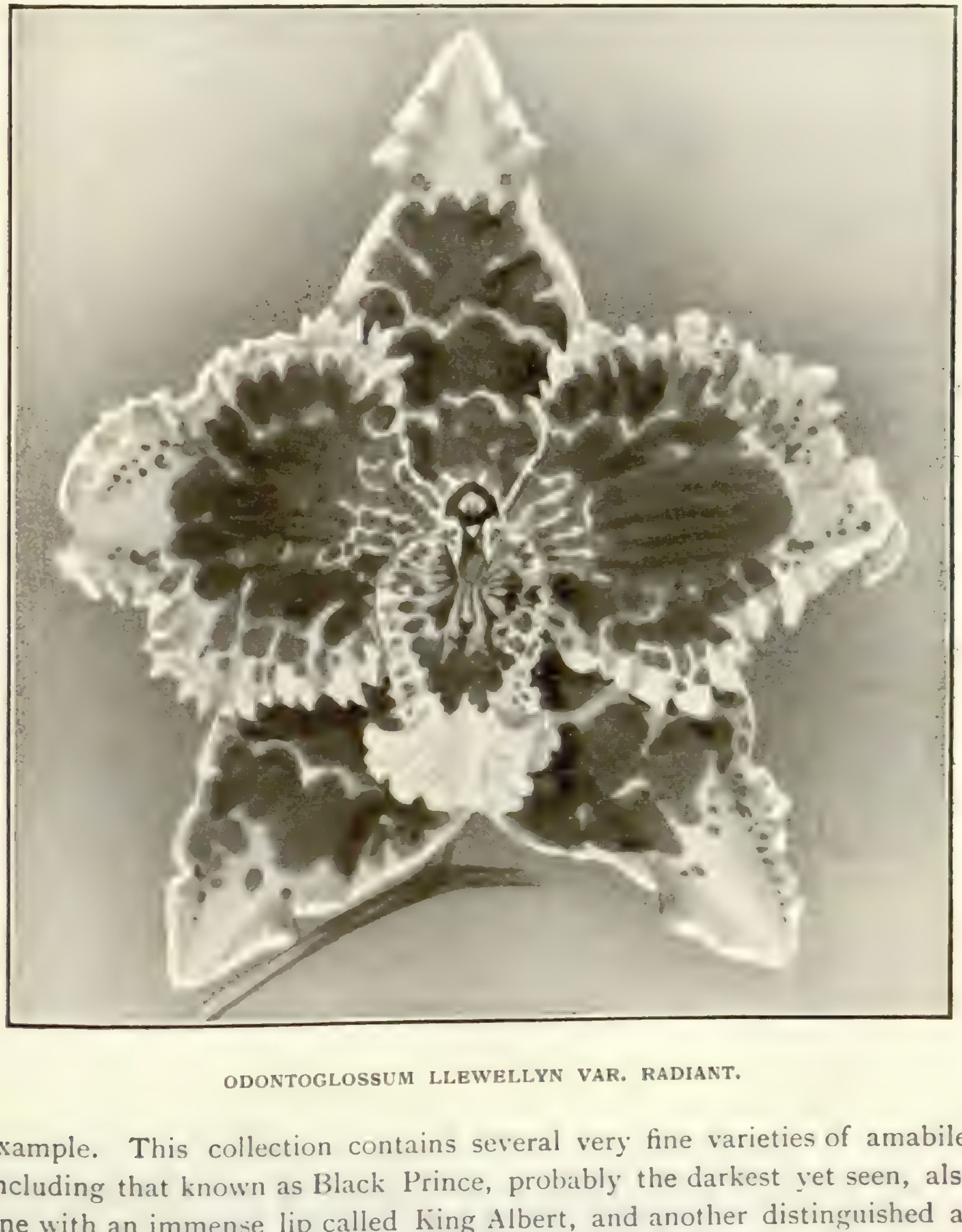


ODONTOGLOSSUM MACEANUM.

var. Marion Worsley, a flower of fine formation that this season remained fresh for just over two months; of Odm. Gladys, a pretty hybrid of cirrhosum; and of Odm. Vuylstekei, an attractive flower of yellow colour derived from the crossing of Wilckeanum with harvengtense.

Fine varieties of Odontoglossum crispum form one of the chief attractions of this collection. The unblotched varieties have a singularity of charm that is less frequently observed in many of the blotched hybrids. O. crispum var. Renown was in flower during the month of September, and although somewhat out of season, the segments were unusually well

developed, the whole flower being white, except for a blotch of colour on the lip. O. crispum var. Harry Worsley is a massive flower, four inches in width, displaying exceptional development of the sepals and petals, cream-white, tinged with rose. In the making of the early-day hybrids, the species known as O. Harryanum was largely used, and its distinct characters are carried forward in most of its hybrids, O. amabile being a noteworthy



ODONTOGLOSSUM LLEWELLYN VAR. RADIANT.

example. This collection contains several very fine varieties of amabile, including that known as Black Prince, probably the darkest yet seen, also one with an immense lip called King Albert, and another distinguished as Challenger. There is a handsome flower called O. Llewellyn variety Radiant (amabile × Georgius Rex), of large size, rose-tinted, and heavily blotched and spotted with crimson-purple. It received a First-class

Certificate when shown at the Manchester Orchid Society, December 7th, 1922.

Another Odontoglossum house is reached by ascending a few steps, and as it contains most of the finer varieties of this collection, Mr. Worsley jokingly describes it as the Upper House of Lords, in distinction to the Lower House of commoner forms. Here are cultivated more varieties of O. crispum, including the well-known solum, magnum bonum, Charmian, in which the only spotting is seen on the three sepals, and the charming variety known as Mrs. Harry Worsley. As an example of the robust nature to be seen in most of the plants, mention may be made of O. Lambardeanum giganteum with a spike over 30 inches in height and carrying immense flowers of violet-purple colour, the petals prettily toothed at the edge, and the labellum well above the average size. Another giant exists in O. Leviathan, unfortunately of unrecorded parentage, and a singular flower in O. memoria J. G. Fowler, which closely resembles O. ardentissimum solum by an occasional large circular blotch of colour. O. Grand Duke Nicholas is certainly one of the best of all the large-flowering hybrids, for the individual blooms measure five inches across, while the colour is an arrangement of vivid crimson-purple on a rose-violet ground.

Of the more recently produced yellow-spotted hybrids this collection includes the very fine Odontoglossum Goldcrest, which received a First-class Certificate at the Royal Horticultural Society on June 12th, of this year, when the arching spike bore 13 flowers with the segments prettily spotted with bright lemon-yellow. A handsome hybrid may be seen in O. Lambeauianum var. Harry Worsley, of fine formation and deep wine-purple colour, while a couple of choice varieties of O. eximium are cultivated in La Papillon, F.C.C., R.H.S., Oct. 22nd, 1918, and Earl of Chester, with segments of rich colour. It is impossible to describe all the many fine Odontoglossums in this collection, but mention must be made of O. Everest, F.C.C., R.H.S., March 23rd, 1920, a flower of remarkable development and elegantly blotched, and of several that came from the late Mr. W. R. Lee's celebrated collection at Plumpton Hall, among them being Charmian, Ajax, and Thais. The latest addition to this remarkable assemblage is O. Maceanum (His Majesty × crispum Fearnley Sander), of which the illustration gives a faithful idea of its superlative qualities. There is also a good example of the famous O. President Poincaré, still regarded as one of the best of its kind.

In a spacious corridor numerous Cypripediums are grown for cut-flower purposes, also several specimen plants of Sobralias, and a varied collection of Cymbidiums, the latter including the beautiful and rare C. Sybil album, several hybrids of eburneum, Alexanderi, Gottianum, and Pauwelsii. A large lean-to house is entirely filled with choice Cypripediums, and during

the last few weeks has been very gay with a fine display of these elegant flowers. Among the species are healthy examples of C. niveum, now somewhat scarce, Curtisii Sanderæ, which is said to last a long time in perfection, Wrigley's variety of Spicerianum, noted for its tall flower spike, and many of the finest varieties of the popular insigne. It is of interest to note

CYPRIPEDIUM HESTIA VAR. RUTH (CYCLOPS × LADY DILLON).

that under the staging, and of nearly equal size to it, is a shallow tank of water which greatly assists in maintaining the humid atmosphere necessary for the successful cultivation of these terrestrial Orchids.

Lancashire has long been noted for the finest Cypripediums, and a visit to the Stonehouse collection will amply reward all lovers of these elegant plants. Of the numerous hybrids here cultivated, first place must be given

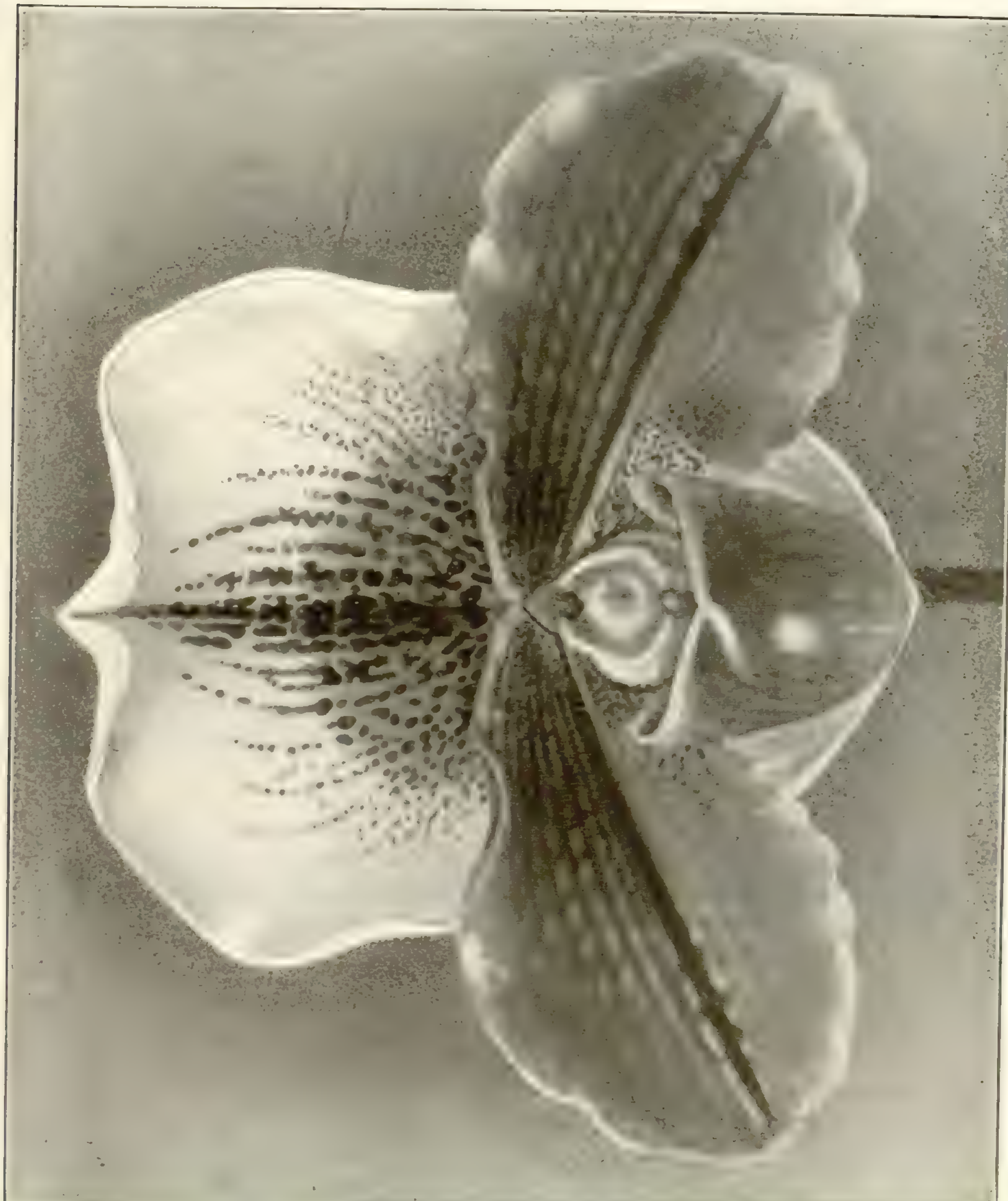
to Cypripedium Perseus, of which a fine series exists. One of the earliest of these to flower was given the varietal name Alpha, and when shown at the Manchester Orchid Society in 1918 its meritorious nature was recognised by the bestowal of a First-class Certificate and Silver Medal. A similar Certificate and Silver-gilt Medal were in January, 1921, given to the variety Ruth, when the flower measured 5½ inches across and the petals were 2 inches wide. Some idea of the way in which these fine things are being propagated may be gained from the fact that six strong plants already exist of this particular variety. C. Perseus var. Moonbeam is another beautiful Cypripedium of similar parentage. Cyp. Hestia also stands in the front rank of modern hybrids, and in the Ruth variety of it the extensive dorsal sepal has an apple-green base, while the extraordinarily developed petals are greenish-yellow heavily shaded with dull crimson on the upper half. Cyp. Hestia var. Empress of India is remarkable for the solid blotching on the dorsal sepal. Of the well-known Cyp. Dreadnought there are three robust plants, and of Cyp. Warrior the Blenheim variety is specially distinct.

One of the most distinct hybrids in this genus is Cyp. Nirvana, obtained by crossing Alcibiades with aureum, and represented in Mr. Worsley's collection by a variety having the large dorsal sepal pure-white, except for a small greenish area at the base, and the other segments of clear yellowish-green colour. One of the finest of yellow flowers exists in Cyp. Golden Fleece, while in Cyp. Royal Sovereign the dorsal sepal is prettily covered with small spots. Sufficient notes have, we hope, now been given to prove the high-class nature of this extensive collection. Mr. Worsley is intensely interested in all his plants, which, under the special care of Mr. C. E. Mace, look the picture of good health and happiness.

It remains to be recorded that Mr. Harry Worsley possesses one of the largest collections of Orchid paintings. They number over 600, and are methodically stored in a cabinet that stands in the billiard room of his house. Records thus exist of most of the finest plants in his garden, and being ever ready for reference, an interesting means exists whereby the evolution of hybrid Orchids may be studied. The illustration of Cypripedium Perseus var. Ruth on the next page shows one of the finest of modern hybrids in this popular section.

CATASETUM EBURNEUM.—This species produces long racemes of ivory-white flowers. It was imported from the Cattleya Mendelii district by Messrs. Charlesworth & Co., and flowered with them in the autumn of 1900. Catasetums are interesting species to study, while their method of flowering is frequently a matter of surprise to visitors; so long as sufficient heat can be given their cultivation is by no means difficult.

SCHLIMIA TRIFIDA.—This plant is not often seen in present-day collections. It has the habit of a small Stanhopea, the fragrant flowers appearing as if made out of wax, and appears to have first flowered in Sir Trevor Lawrence's collection in 1877.



CYPRIPEDIUM PERSEUS VAR. RUTH. F.C.C., M.O.S., JANUARY 20TH, 1921.

STANHOPEA PLATYCERAS.—This handsome species was introduced by Messrs. Low & Co. It flowered for the first time in England in the collection of Mr. John Day at Tottenham in 1867. The specific name refers to the unusually broad horns of the mesochile, and which, with the curved and broad hypochile, well distinguishes it from others.

ORCHIDS AT WESTGATE HILL, BRADFORD.

THE history of the firm of Messrs. A. J. Keeling & Son goes back to 1893, but before this date the late Mr. A. J. Keeling had spent many years of his life in cultivating Orchids. Although his first result in hybridising was seen in Cypripedium apiculatum (barbatum × Boxallii), which flowered in 1886, it was Cyp. Juno (callosum × Fairrieanum) that brought him prominently to notice, for this beautiful hybrid flowered in the short period of two years and eleven months from the time of fertilisation, a remarkable achievement. A figure of it is given on page 249 of our August issue. Soon after the late Mr. Charlesworth commenced seed raising, Mr. Keeling went to Heaton to assist in the work. A few years later he started in business for himself at Bingley, Yorks, and in 1899 produced the elegant Cypripedium bingleyense (Charlesworthii × Harrisianum), probably the first hybrid Cypripedium having a rose-flushed dorsal sepal. The business continued to expand, and in 1902 was removed to Westgate Hill, Bradford. Its founder died in September, 1920, leaving Mr. Arthur Keeling to carry on the reputation made during thirty years of Orchid cultivation.

As regards the atmosphere in and around Bradford, no one can call it particularly favourable for cultivating Orchids, but some three miles from the centre of this important city, Mr. Keeling found at Westgate Hill a suitable place for constructing his nursery, and where, at an altitude of 800 feet, a somewhat clearer atmosphere prevails. The glass-houses are constructed on the span-roof style, and are provided with up-to-date means for controlling the necessary heating, ventilation, and shading.

Messrs. Keeling have always been noted for high-class Cypripediums, and many thousands of these popular plants have been distributed by them. Keeling's variety of Leeanum has had many years of popularity, and even to-day is much esteemed by amateurs. Other well-known hybrids largely cultivated are Maudiæ, Alma Gavaert, and Bianca. A very large flower is to be seen in Cyp. Idina, Beckton's variety, and another in Cyp. John Hartley, to which a First-class Certificate was given by the Royal Horticultural Society, December 3rd, 1918. Other Cypripediums that have been raised and sent out by this firm are Becktoniæ, always considered a model flower, Bedfordiæ (A.M., R.H.S.), a very fine production, and Brigadier, derived from the crossing of Leeanum Keeling's var. with Gaston Bultel, but not yet exhibited. There are fine plants of Cyp. Duchess of Marlborough, Royal George, and Nirvana, the latter having a very large clear-white dorsal sepal.

Several of the fine Cypripedium hybrids raised at Westonbirt are here to be seen, some of them in several strong plants with many growths; they include Corsair, Golden Fleece, Bianca, and Nydia. Among the numerous

other hybrids in this popular genus, mention may be made of Warrior, the Haddon House variety of Desdemona, the Chardwar form of Pyramus, several grand varieties of Perseus, and memoria F. M. Ogilvie var. Rex, to which a Gold Medal has been awarded. It is satisfactory to note that Mr. Keeling is fully assured of the widespread interest that will always be taken in Cypripediums, and on this account he is continually raising fresh seedlings and procuring the finest results from other sources. Of the varieties that are specially suited for cut-flower purposes, there is an extensive stock, and orders for many thousands of these forms have of late years been received from abroad and executed.

Of the so-called botanical Orchids, Masdevallias are probably the ones most selected by amateurs, for the majority of these plants succeed well in a cool and shady house. Consequently it is easily understood why a large stock is here cultivated. Many of them are grown in pans and baskets suspended from the roof, and in the case of those having pendulous flowers this is certainly the best means for displaying their attractive qualities. Noteworthy examples include M. Ephippium, also known under its later name M. Trochilus, but commonly called the Humming-bird Orchid, the elegant M. Schrœderiana, several specimens of M. bella, with its curiously constructed shell-like labellum, the pretty M. polysticta, so named on account of its much dotted flowers, and M. muscosa, an interesting species having a sensitive labellum that suddenly closes up whenever an insect alights upon it.

Miltonias are also well cultivated, especially those of the vexillaria section, all the noted varieties being included. There are also healthy plants of M. Regnelii citrina, in which the flower is of a citron-yellow colour, and of M. Binotii, a natural hybrid between candida and Regnelli. As these last mentioned species are of Brazilian origin, it is possible that they may succeed well along with plants other than Orchids requiring similar atmospheric conditions. If any amateur requires flowers so small that they can only be correctly discerned with a magnifying lens he will obtain them on some of the Octomeria and Pleurothallis species that are successfully cultivated in this same house.

With the revived interest now being taken in species, some plants in an intermediate house are worthy of notice. Among them are Lælia purpurata Lewisii, a beautiful white variety having faint purple radiating streaks on the lip, and which was awarded a First-class Certificate at the Temple Show of 1896. Also Lælia Jongheana Kromeri, the darkest form of this Brazilian species yet seen, and L. pumila alba, F.C.C., R.H.S., October 20th, 1914. Cattleya species are, of course, much more numerous, and besides embracing all the popular varieties, include the rare C. Warscewiczii var. Firmin Lambeau, with pure-white flowers, as well as C. Mendelii var. Princess of

Wales, a handsome form that has been in cultivation for about thirty years. It may be of interest to mention that the unique C. Lawrenceana var. Mary Regina is being cultivated in this house on behalf of a client.

During recent times large numbers of Læliocattleyas have been cultivated. There are fine batches of Fazeana, Soulange, Carmencita aurea, and Mrs. T. Ward, while other meritorious results are to be seen in Dolores, Cornelius, and Gothaurea. Cattleya hybrids are always in request, and favourites are seen in Clotho, with its large flowers of fine formation, Triumphans, of rich yellow colour, Venus, in varying shades of bronze-yellow, Hardyana in both the purple and white petalled varieties, as well as Aeneas, with its golden-yellow flowers. Brassavola hybrids are well represented, and among the specimen plants may be seen Bc. Ilene, Bc. Enchantress, and several well-known Brassolæliocattleyas, of which Blc. Everest is worthy of mention.

A fine plant of Angræcum Ellisii reminds one of the Rev. W. Ellis, who discovered this species in Madagascar during his first journey about the year 1854. There are also specimen plants of A. eburneum and A. Leonis, the latter having leaves like some species of Iris, and caused by the upper surfaces on each side of the mid rib cohering to each other, so that the blade is brought into a vertical position. Aërides are represented by odoratum and virens, and in another part of this house is an interesting little collection of Mormodes and Catasetums. Warscewiczella is a genus not often represented in present-day collections, which is a circumstance probably due to the difficulties experienced in importing them. Mr. Keeling is, therefore, a little proud of his plants, which succeed very well in a light fibrous compost and include W. Lendyana, W. Wailesiana, and W. discolor. Their flowers are exceedingly pretty, and well reward the cultivator for any extra care bestowed upon the plants.

Messrs. Keeling have always taken a special interest in Dendrobiums, and at the present time they find that several amateurs are getting keen on this genus, as was the case years ago. Dendrobium arachnites has been much noticed during the current year, and a nice little batch of it seems at home along with members of its own kind. The Australian Dendrobes are well represented in the handsome D. Phalænopsis, as well as in the pretty D. Kingianum album. There are also many other quaint species, including D. senile, sometimes called the old man Orchid on account of its hairy nature, D. linguiformæ, with its thick leaves of tongue-like formation, and D. atro-violaceum, with its attractive purple-spotted flowers. There are some strong plants of D. Pierardii, which is always of interest as being one of the very first of Indian Dendrobes to be cultivated in Europe. Of the hybrids in this section there are many beautiful varieties, and one that stands out specially for mention is Dend. King George, a wonderful form

with flowers four inches across, and particularly rich in point of colour. In the Odontoglossum house may be seen a varied collection of the most popular hybrids, including selected varieties of Doris, Dora, eximium, Queen Alexandra, and the pretty promerens xanthotes. Species are well represented, and among them are strong plants of hastilabium, the attractive Rossii majus, cordatum, and the very rare Londesboroughianum. A few natural hybrids include those known as Humeanum, aspersum, and Wilckeanum. No amateur's collection is now considered complete without an assortment of the richly coloured Odontiodas. Consequently the stock of these plants has been somewhat reduced through many orders. But the largest plants comprise distinct varieties of Brewii, Madeline, heatonensis, and Red Riding Hood, the latter appropriately named and obtained by crossing Oda. Bradshawiæ with Odm. Rossii.

Oncidiums are often enquired for, and it is found necessary to obtain frequent importations of O. varicosum, as the plants always exhaust themselves by profuse flowering. O. flexuosum seems a much easier species to keep healthy and vigorous, and although its flowers are smaller, they have a fairy-like nature for decorative purposes. In another part of this establishment one may see members of the Trichopilia genus, some interesting Maxillarias, several forms of Brassia, Zylobium species, as well as the attractive Dendrochilum filiforme and D. glumaceum.

The various Cirrhopetalum species have many attractive features to amateurs botanically inclined, and the more they are studied so much the more is the construction of their flowers admired. A large number of them are here cultivated, and among those that have recently flowered are Medusæ, with its tuft of flowers looking like a rough head of hair, Cumingii, very pretty, robustum, one of the stronger growing kinds, Mastersianum, appendiculatum, and miniatum. Bulbophyllums are equally numerous, and include the rare mirum, the singular barbigerum, with its constantly moving feather-like lip, and saltatorium, in which the lip is rarely still. A pretty little rarity exists in Sophronitis violacea, and there are many hybrids of Sophronitis grandiflora, of which Slc. Prudence produces flowers of an intensely rich colour.

Messrs. Keeling make a speciality of disposing of Orchid collections by private treaty and special catalogues. Among those recently so dealt with have been Dr. Bedford's collection of rare species and hybrids, and Mr. Warburton's celebrated plants. At the present time a catalogue is being prepared for the Rev. J. Crombleholme's collection. Although it is generally a sad event to see old-established collections broken up, Messrs. Keeling find that by distributing these plants to all parts of the world, a fresh stimulus is given to other amateurs, who thereby obtain additional gems for their gardens.

CULTURAL NOTES.

By J. COLLIER, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

PREPARING FOR WINTER:—November is considered the period at which the winter treatment of Orchids should commence. During the dull dark days of winter all the light possible is needed for the well being of the plants, and no time should be lost before the cleansing of the houses, both inside and out, is given attention; cleanliness of the plants and their general surroundings is most essential. By keeping everything clean and giving reasonable ventilation, the plants will grow cleaner and keep free from insect pests. It is advisable to reduce the temperatures of the various houses a few degrees by night and also by day. In the absence of sun-heat, the highest temperature of any of the houses should be between the hours of twelve and two p.m., while the lowest should be during the hours of darkness. From now onwards all Orchids will be benefited by being given all the sun-heat possible, and as the sun is capable of raising the temperature of the houses during the middle of the day, advantage should be taken by the cultivator to admit a reasonable quantity of fresh air.

AUTUMN FLOWERING CATTLEYAS, LÆLIAS AND THEIR MANY HYBRIDS.—Henceforward for some weeks these Orchids will furnish the chief attraction in the houses. Year by year hybrids of this section increase in the number of varieties and fine colourings, and they are of very great value in maintaining a display of flowers. The spikes when cut may be used for all kinds of decorative purposes, and by artifical light produce a very charming effect. The flowers will remain in good condition on the plants for some weeks if kept on the dry-side, and the amount of atmospheric moisture is reduced. But care should be taken that the flowers are not allowed to remain on the plants for a sufficient length of time to cause undue shrivelling of the pseudo-bulbs. After the flowers are removed, the succulent flower-sheaths should be cut off, severing them as near as possible to the top of the pseudo-bulbs. If these are allowed to remain, moisture sometimes accumulates at the base and sets up decay. The plants at this stage should be afforded a period of rest in the coolest, and best ventilated part of the Cattleya house. They should receive only sufficient water to keep the pseudo-pulbs plump, and be given every encouragement to form new roots, but premature growth should be prevented as far as possible. Weakly specimens should have their flower-spikes removed as soon as they appear through the sheaths, in order to throw all the energies into growth. Plants of Cattleya Trianæ that have completed their growths should be carefully watered, they need only sufficient moisture to keep the old roots moist, but the supply may be increased slightly when the flower-spikes are

seen to be pushing from the base of the sheaths. C. Lawrenceana makes its growth during the winter months, and is in consequence a difficult plant to cultivate successfully for many years. It should be grown in the warmest part of the Cattleya house and placed near to the roof-glass, so that it may obtain plenty of light. The compost should be allowed to become quite dry between each application of water, when it should be poured around the outer edges of the compost. From now onwards discretion should be exercised in applying water to the roots of the Cattleya genus, for it is better to keep the plants on the dry side than to allow the soil to become saturated.

CYPRIPEDIUM CONCOLOR, C. NIVEUM, C. GODEFROYÆ, C. BELLATULUM, and many of the hybrids of these plants should receive very careful treatment during the dull winter months. Having thick fleshy leaves, the plants do not require so much moisture at the roots as other Cypripediums, the compost should be allowed to become dry before water is applied, when the receptacle may be immersed nearly to the rim, or the water poured around the outer edges of the soil, the object being to prevent moisture lodging in the axils of the leaves. In removing the flower scapes, cut them clean to the base.

PLANTS OF ODONTOGLOSSUM CITROSMUM that are nearing the completion of their season's growth should be suspended or staged near to the roof-glass in an intermediate temperature. The supply of water at the roots should be reduced gradually, until after the new pseudo-bulbs are thoroughly developed, when moisture should be withheld for longer periods, affording only sufficient to keep them rigid. This treatment should be continued through the winter months, and until the flower spikes are seen to be pushing from the centre of the young growths. Odontoglossum grande and O. Schlieperianum that have passed out of bloom should be placed on a shelf near the glass in the cool house and rested. O. Insleayi and its variety Leopardinum are producing their flower spikes and should be liberally supplied with water until after the flowers fade, when they should be rested.

ZYGOPETALUM.—The partially developed pseudo-bulbs of Zygopetalum Mackayi are sending out flower spikes, and from now onwards until the flowering season is over extra care must be taken in watering the roots, for an excess of moisture may cause the leaves to become spotted. Water should only be applied when the compost is dry, sufficient to soak the materials thoroughly being applied. The compost should be allowed to become dry before affording moisture again. Z. Crinitum, Z. Clayi and others of this type together with Z. Perrenoudii, should be afforded similar treatment until the growth of the new pseudo-bulbs is completed. All these plants thrive best in a moist shady position in the intermediate house. Z.

Balliæ, *Z.* rostratum, and *Z.* Rœblingianum, should be given a similar position in the house The surface layer of sphagnum moss should be sprinkled frequently to keep it in a green, healthy condition. Plants of the Bollea section, such as B. cœlestis, Pescatorea Lehmannii, P. Klabochorum together with Chondrorhyncha Chestertonii, and C. fimbriata, are now pushing new roots, and any necessary repotting or resurfacing may be done at this period. A suitable rooting medium may be composed of equal parts sphagnum moss and osmunda fibre, with a sprinkling of crushed crocks to make it porous. Pots or pans without side holes are the most suitable receptacles. Press the compost moderately firm and finish off with a layer of live sphagnum moss over the surface. *Z.* maxillare and *Z.* Gauteri are also producing new roots, and may be given similar attention. These Orchids have a rambling habit, and are not suitable for growing in pots or pans, they are best fixed on a portion of the stem of a tree-fern. If necessary, the rooting space may be extended by wiring another piece of stem on top of the old block. The roots should be kept moist at all times. *Z.* maxillare thrives best when suspended in a moist shady position in the warmer part of the intermediate house.

PHALÆNOPSIS INTERMEDIA.—This Phalænopsis was not only the first artificial hybrid of the genus, but the first successful experiment undertaken to prove the origin of a wild plant. In 1853, Phalænopsis intermedia appeared in an importation of P. Aphrodite from the Philippines, and Lindley then suggested that it might be a natural hybrid between that species and rosea. In order to determine the correctness of this opinion, Seden crossed P. rosea with the pollen of P. Aphrodite, and when one of the resulting seedlings flowered in 1886 it proved identical with the wild P. intermedia.

WATERING PANS AND BASKETS.—When visiting one or two amateur's collections I was rather struck by the different ways in which water was applied to the plants growing in pans and baskets suspended from the roof. In one case the gardener mounted a pair of steps and applied water with a can, in such quantities that it deluged the plants on the staging beneath. In another house I noticed that the pans had been taken down and dipped in the tank until they were thoroughly moistened, but instead of being left to drain, they were quickly re-hung, so that water fell on to other plants beneath. Such careless treatment may well account for the decay that frequently starts near the flower-sheath, and which is generally attributed to a low temperature at night. If these plants cannot be suspended directly over the path, they should be allowed to drain before being re-hung.—"*Observer*."

EXHIBITS OF SPECIAL ORCHIDS.

AT the meeting of the Orchid Committee, on September 18th, the chairman, Sir Jeremiah Colman, Bart., read a communication from the Hon. Henry D. McLaren, suggesting that the Committee should ask the Council of the Royal Horticultural Society to reserve dates during the year 1924, on which one or more genera of Orchids should form the special feature. At the meeting held October 2nd, Sir Jeremiah Colman stated that the Council had agreed to the suggestions made, and that certain dates were being arranged for the showing of Cypripediums, Cymbidiums, Odontoglossums and Cattleyas.

A similar scheme, although on a far more extensive scale, was arranged for the year 1906. On every R.H.S. meeting held in that year First and Second Diplomas were offered to plants of exceptional merit shown in one combined group. By this means groups representing the varieties of the particular species decided upon for exhibition, together with hybrids of the same, were of more than ordinary interest. At the same time, the Society's paintings of the species and hybrids in the particular section were exhibited.

Since the year 1906, vast strides have been made in the production of hybrids, and much greater opportunities now exist for presenting suitable plants on the respective dates, but, on the other hand, some of the species, well-known in former days, have almost dropped out of cultivation. For the competitions in 1906, January 23rd, was reserved for Oncidiums; February 13th, for Cypripedium villosum; May 15th, for Lælia purpurata and its hybrids, as well as Lc. Schilleriana and Lc. elegans; July 17th, for Lælia tenebrosa and its hybrids; September 25th, for Cypripedium Rothschildianum and its hybrids; and October 23rd, for Lælia Dayana, L. pumila and hybrids.

On other dates in 1906, April 3rd, was for Cymbidiums, the First Diploma being awarded to C. Lowianum, Fir Grange var., and the second to C. grandiflorum punctatissimum. For Cymbidium hybrids the First Diploma went to C. I'Ansonii, and the second to C. eburneo-Lowianum. No doubt the greatest advance made in any of the sections will be that seen in Cymbidiums, for ever since the first hybrid of C. insigne appeared in January, 1911, a continual stream of novelties has been presented at the R.H.S. meetings.

April 17th and May 1st, 1906, were reserved for Odontoglossum species and hybrids, the former being limited to crispum, Pescatorei and triumphans; for hybrids, the First Diploma went to O. Adrianæ aureum. It is expected that the date fixed in 1924 for the exhibition of Cattleya species and hybrids will be the same as that arranged for the R.H.S. Autumn Show of Orchids. Autumn flowering hybrids in the Cattleya section have now

reached a point of great elegance and beauty, and as many of them contain C. Dowiana aurea in their parentage, an opportunity will be given of studying the special effects of this useful species.

Cypripediums are now so numerous that the one day allowed for the exhibition of these plants will only permit of a certain section being shown. Doubtless in future years a date during another season of the year will allow of other kinds being staged. These special events of 1924 will be of considerable interest, and add much to our knowledge of the particular sections of plants exhibited.

The *Gardeners' Chronicle*, in its issue of October 20th, publishes a letter from Mr. Jas. O'Brien, who writes, "I think the exhibition of special genera of Orchids in the manner indicated would be rendered doubly interesting if arrangements were made to show the pictures of all the members of each genus which have received awards at the Royal Horticultural Society. The pictures could be arranged together, and to avoid the necessity of handling them to see the records on the back, a small card with the name and parentage of each could be attached to the front of the picture."

CONTINENTAL NOTES.

THE weather during the past summer has not been very favourable to Orchid growers in Belgium, and generally speaking, the plants are somewhat irregular in the matter of new growth. In places where it has been possible to procure an ample supply of fuel, the Cattleya section is well up to the average. Business in the cut-flower trade is poor, as it is impossible to dispatch flowers to France, and a market has to be found for them in Holland and Scandinavia.

We learn that the collection of Orchids formed in Germany by the late Dr. Goldschmidt has been purchased by Mr. H. Rothe, of Zehlendorf, Berlin. Also that Mr. Rehn, formerly Orchid grower at the Frankfurter Palmengarten, is now in charge of an Orchid nursery: Haus Schulenburg, 120 Waldstrasse, Gera Reuss, Germany. Mr. Fr. Varacek is growing Orchids on his own account at Zahradnictoi, Plotiste, Czecho-Slovakia.

ANGRÆCUM VARIABILE.—The last issue of the *Journal* of the Royal Horticultural Society, contains the report of the Scientific Committee meeting, held December 12th, 1922, at which a Botanical Certificate was awarded to Angræcum variabile, exhibited by Mr. Baker. This species is a native of Nyassaland, and is curious on account of its bright-red staminodes.

ROYAL HORTICULTURAL SOCIETY.

THE Royal Horticultural Society's Autumn Exhibition was held on October 2nd, 3rd, and 4th, in the Holland Park Hall, Kensington, when Orchids were shown by several firms, although by no means so largely as at Chelsea, probably on account of the special Orchid Exhibition arranged by the Society for October 30th.

Members of the Orchid Committee present:—Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, E. R. Ashton, W. H. Hatcher, R. G. Thwaites, A. Dye, J. E. Shill, H. G. Alexander, S. W. Flory, J. T. Barker, C. H. Curtis, Pantia Ralli, Clive Cookson, J. Cypher, A. McBean, H. T. Pitt, F. K. Sander, Stuart Low, C. J. Lucas, W. H. White, W. J. Kaye, and J. Wilson Potter.

FIRST-CLASS CERTIFICATE.

Læliocattleya Marina var. majestica (C. Hardyana × Lc. St. Gothard); from Messrs. Cowan & Co., Southgate. A glorious Cattleya both as regards size and colour. The large flower had all the segments widely developed and of model proportions. In colour deep rosy mauve tinged with pink, the broad labellum rich ruby-crimson, the isthmus bright yellow and with lines of similar colour extending to the base.

AWARDS OF MERIT.

Brassolæliocattleya maculata, The Dell variety (Blc. The Baroness × Lc. Thyone); from Baron Bruno Schröder, Englefield Green (gr. Mr. J. E. Shill). This attractive hybrid bore two flowers of medium size, of chrome yellow colour and with light crimson markings on the lip. Another example with flowers of lighter tint was also staged.

Cattleya Aeneas var. Goliath (Dowiana aurea × Venus); from Messrs. Cowan & Co. A fine flower well above the average size and of rich orange-yellow colour, the extended labellum having markings of crimson-red on the front and lines of similar colour on the side lobes.

Sophrolæliocattleya His Majesty var. Flammea (Slc. Marathon × C. Trianæ); from Messrs. Charlesworth & Co. An excellent addition to this section, the flowers being of dark rosy-mauve colour, the petals having a purple streak along the mid-rib.

Læliocattleya Mrs. Medo var. Sovereign (C. Venus × Lc. luminosa); from Messrs. Stuart Low & Co. A beautiful result, in which the erect spike carried three strongly developed flowers of clear canary-yellow colour, the extended labellum velvety crimson.

Cattleya Cupid var. Tagus (Rhoda × King George); from Messrs. Flory & Black. A most welcome addition to the yellow section, the sepals and up-standing petals being broadly developed, of bright yellow colour, the wide labellum crimson and with gold lines extending up the throat.

GROUPS.

Messrs. Charlesworth & Co. were awarded a Gold Medal for an extensive group, in which much judgment was shown in displaying the numerous plants to the best advantage. Among the novelties were Charlesworthara Rajah (Miltonioda Ajax × On. monachicum), of dark chocolate colour; Vuylstekeara Edna, of reddish-crimson colour: Odontonia lutea, obtained by crossing O. Magali Sander xanthotes with O. luteopurpureum Vuylstekeanum, and showing much yellow blotching in the flowers, as well as several interesting crosses of Miltonia. Cattleyas included a fine variety of Luegeæ with four large flowers, several examples of C. Hardyana alba, the richly coloured C. Dionysius, and C. Enid alba, a distinct form with bright purple on the lip surrounded by a broad white area. At each end were masses of the beautiful Odm. crispum xanthotes and its hybrids, while along the back were numerous Læliocattleyas. Hybrids of Brassavola Digbyana were seen in Blc. Joiceyi and Blc. Golden Crown, the latter carrying forward the good qualities of Blc. Joan and C. Venus. The centre of the group contained a fine specimen of Phalænopsis amabilis.

Messrs. Stuart Low & Co. received a Large Silver Cup for a fine group of hybrids, among them being the pretty Cattleya Hesta alba, white except for slight purple on the lip, C. Cooksonii alba, an elegant variety of large size, and C. Hardyana, always a favourite. The Læliocattleyas comprised fine varieties of Haroldiana, as well as Alex with four copper-coloured flowers, the Lord Renfrew variety of St. Gothard, and Ortega with flowers of a pretty salmon-buff tint. Many excellent Brassocattleyas were staged, including Ilene and Poilu, the latter with three well-formed flowers. Hybrids of Sophronitis grandiflora were in good form and comprised vigorous examples of Slc. Niobe, one bearing four flowers. Cypripedium Maudiæ and others of the genus showed up well, and amongst the smaller growing species were the pretty Dendrobium Victoria Regina and Bulbophyllum Godseffianum.

Messrs. Flory & Black received a Silver-gilt Flora Medal for a neat arrangement of excellent Cattleyas. They included C. Gravesiana alba, with large pure-white flowers, the elegant C. Tagus var. Cupid, Læliocattleya Carmencita, with yellow sepals and petals, Lc. Clarinda, very showy, Lc. Illuminata, a novelty bearing a rich crimson lip, and Lc. Princess Mary, with golden-yellow segments, the lip marked with crimson. Blc. Baron Ohara and Blc. Rumania were a couple of grand hybrids that came in for appreciation. Cypripediums included the pretty Phantasy and Chloris, the latter a novelty of this year's production. A promising new hybrid was seen in Brassocattleya Viscount Sohma (C. Moira × Bc. Ilene).

Messrs. Mansell & Hatcher were awarded a Silver-gilt Medal for an extensive exhibit containing fine examples of the showy Læliocattleya

luminosa aurea, also Lc. Diana and Lc. Dodona. Cattleya virginalis and Bc. Windsor were in fine form and Miltonias were represented by Bleuana var. Our Queen and superba. Odontioda Sunbeam var. Sunset carried a spike of pretty flowers tinged with crimson, and another of similar parentage bore a many-flowered spike, in which the prevailing colour was rose. Oda. Euterpe was of rich red colour. Among the Cypripediums were well flowered examples of Maudiæ, Farrieanum, Rossettii and insigne Sanderæ. A fine variety of Cattleya Fabia bore four richly-coloured flowers, and in the front were strong plants of Cochlioda vulcanica and Oncidium flexuosum.

H. T. Pitt, Esq., exhibited Cattleya Prince Shimadzu, Rosslyn var., with a spike of five rose-purple flowers, the large lip crimson-purple, and Brassocattleya Penelope, Frenchay var., of large size and rose-pink colour.

A. M. Gentle, Esq., St. Albans, staged Læliocattleya Nancy var. Edith Gentle, of light-mauve tint and tinged with yellow, the wide lip bright purple ; also a well-cultivated example of Pleione Wallichiana with nine flowers.

Messrs. Cowan & Co. showed Cypripedium Bedfordiæ, a large flower, the dorsal sepal light apple-green bordered with white.

October 16*th*, 1923.

Members of the Orchid Committee present: Sir Jeremiah Colman, Bart. (in the chair), Messrs. Jas. O'Brien (hon. sec.), Viscount Sohma, R. Brooman White, C. J. Lucas, S. W. Flory, J. Wilson Potter, R. G. Thwaites, W. H. White, H. T. Pitt, Gurney Wilson, H. H. Smith, A. Dye, J. H. Shill, C. H. Curtis, H. G. Alexander, and the Hon. Henry D. McLaren.

FIRST-CLASS CERTIFICATES.

Cypripedium Albion, Bodnant var. (niveum × Astarte), from Lady Aberconway and the Hon Henry McLaren. A beautiful hybrid composed of bellatulum, niveum and insigne Sanderæ, and an improvement on Boltonii. The roundly-formed segments porcelain-white, the sepals and petals minutely dotted with rose, and the staminode having a greenish centre.

Cattleya Mrs. Gratrix (Lady Veitch × intertexta Juliettæ), from Messrs. Sanders. A pure white result produced by combining albino varieties of Mossiæ, Warneri and Lueddemanniana. The flower of model formation and pure white, except for some bright orange-yellow colour in the throat.

OTHER EXHIBITS.

Messrs. Cowan and Co. were awarded a Silver Banksian Medal for a neat group containing a fine plant of Læliocattleya luminosa aurea, with

three wide flowers of citron-yellow sepals and petals, and a rich-purplish lip; Lc. Soulange, with a couple of large rose-purple flowers; Lc. J. J. Ansaldo, with flatly-formed petals; the elegant Cattleya Salara alba, with pure white flowers; handsome varieties of C. Hardyana; a good example of C. Thebes; Cypripedium Dreadnought, Cyp. King George V., and the F.C.C. variety of Cyp. Boltonii.

Messrs. Charlesworth & Co. staged Odontonia maculata, a large flower of golden-yellow colour, spotted with red-brown: Cattleya Enid alba, with a spike of four flowers, white with a purple area on the lip; the handsome Vuylstekeara Jos. Charlesworth, with a spike of five deep crimson flowers; Odm. eximium virginale, bearing an arching spike of sixteen flowers; and Slc. Prince Hirohito var. Vesuvius, having three flowers of rich crimson-rose colour.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), exhibited a pleasing variety of the rare Vanda luzonica, well-grown, and carrying a spike of fourteen whitish flowers bordered with violet-rose markings.

MANCHESTER ORCHID SOCIETY.

September 6th, 1923.

MEMBERS of the Committee present:—A. Hanmer, Esq. (in the chair), Messrs. J. Birchenall, A. Burns, A. Keeling, E. W. Thompson, and H. Arthur (secretary). Mr. E. Tack was invited to sit with the Committee.

FIRST-CLASS CERTIFICATES.

Læliocattleya Mrs. Medo (C. Venus × Lc. luminosa), a fine shaped flower of brilliant colour; from S. Gratrix, Esq.

Odontoglossum Helma (parentage unknown), a handsome flower, heavily marked; from P. Smith, Esq.

CULTURAL CERTIFICATE.

To Mr. E. W. Thompson, for Odm. Helma.

Messrs. A. J. Keeling & Sons staged Lc. Soulange, Lc. Carmencita aurea, Cyp. Nandii, Cyp. Alma Gevaert, and the rare Dendrobium asperifolium.

September 20th, 1923.

Members of the Committee present:—R. Ashworth (in the chair), Messrs. J. Birchenall, A. Burns, D. A. Cowan, A. Coningsby, J. Cypher, J. Howes, A. Keeling, E. W. Thompson, and H. Arthur (secretary). Mr. Gurney Wilson was invited to sit with the Committee.

FIRST-CLASS CERTIFICATES.

Læliocattleya Momus var. Mirimar, a large flower of excellent shape.

sepals and petals broad and of deep rosy-mauve, lip amethyst-purple with golden lines in the throat; from Mrs. Gratrix.

Brassolæliocattleya Thompsonii alba (B. Digbyano-purpurata × Gaskelliana alba), a lovely pure-white flower, the expansive labellum having a rich orange throat; from S. Gratrix, Esq.

Sophrocattleya Sofrano var. Primrose Queen (C. iridescens × Bc. Mrs. J. Leemann), a flower of fine formation, the large lip prettily frilled, primrose-yellow throughout; from Messrs. Cowan & Co.

AWARDS OF MERIT.

Cattleya Thebes (aurea × Adula) and C. amabilis alba; from P. Smith, Esq.

Sophrolæliocattleya Thyone (Slc. Marathon × C. Thyone); from S. Gratrix, Esq.

Cypripedium Godefroyæ var. ochroleuca; from S. Gratrix, Esq.

CULTURAL CERTIFICATE.

To Mr. J. Howes, for Læliocattleya J. Ansaldo, with a spike of three finely-developed flowers.

OTHER EXHIBITS.

S. Gratrix, Esq., West Point (gr. Mr. J. Howes), staged a group, to which a Gold Medal was awarded, the plants being in an exceptionally fine state of cultivation. It included Cattleya Our Prince, of fine formation, clear yellow, the lip margined with rose. C. Thebes, bronze-yellow with purple lip; C. Abekeniæ, of delicate cream colour; C. Venus var. Royal Monarch, with an erect spike of four flowers; and several excellent forms of Odm. crispum and well-flowered examples of Odm. grande.

P. Smith, Esq., Ashton-on-Mersey (gr. Mr. E. W. Thompson), staged Cattleya Thebes and C. amabilis, Haddon House var., the latter bearing two large flowers, thick textured, pure-white, except for a purple area on the front of the labellum.

Messrs. Cypher & Sons exhibited a group, to which a Silver Medal was awarded. Amongst the plants were fine forms of Cypripedium I'Ansonii, Cyp. Mrs. E. V. Low, Cyp. Triumphans, the attractive Cattleya Hardyana alba, Oncidium Kramerianum, a singular Catasetum species, and the pretty Miltonia Regnelii.

Messrs. A. J. Keeling & Sons exhibited Cyp. Rothschildianum, Cyp. Charlesworthii, of deep rose colour, Cattleya Mrs. Ward, a strong plant of Miltonia Regnellii and Odm. mirum.

Messrs. Cowan & Co. staged Cypripedium Nanon (Fairrieanum × W. R. Lee), of pleasing formation, and Cyp. Fusilier (Selene × Gurka).

Mr. D. McLeod staged a handsome blotched Odontoglossum, also a well-grown example of Cyp. Germaine Opoix.

October 4th, 1923.

Members of the Committee present:—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, W. Beesley, J. Birchenall, J. Evans, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, D. Losh Thorpe, D. McLeod, F. K. Sander, E. W. Thompson, J. Whitham and H. Arthur (secretary).

FIRST-CLASS CERTIFICATE.

Cattleya Hesperus var. Duchess of York (Enid alba × Hardyana alba), from S. Gratrix, Esq. A large flower of fine formation, sepals and petals pure-white, the lip vividly coloured with rose-purple and margined with white.

AWARD OF MERIT.

Cattleya Dupreana alba (Warneri alba × Warscewiczii alba); from S. Gratrix, Esq.

CULTURAL CERTIFICATES.

To Mr. A. Burns, for Cirrhopetalum Rothschildianum; Messrs. A. J. Keeling & Sons, for Angræcum Sanderianum.

GROUPS.

S. Gratrix, Esq., West Point, Manchester (gr. Mr. J. Howes) staged a group of Cattleyas to which a Silver-gilt Medal was awarded. It contained finely cultivated examples of C. Hesperus var. Duchess of York, C. Dupreana alba, C. Venus majestica and C. Snow Queen. Among the Læliocattleyas were pleasing varieties of Britannia alba and Freda Sander, while Brassocattleyas were represented by the elegant Asmodia, and hybrids of Sophronitis by Slc. Faboris.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), were awarded a Large Siver Medal for an interesting group containing the fine Cypripedium Shogun, Cyp. Dreadnought, Cyp. Ernest Read, and others. Odontoglossum grande, with its rare variety aureum, was in excellent condition, and an interesting species was staged in Cirrhopetalum Rothschildianum.

Messrs. Cypher & Sons received a Silver Medal for an exhibit comprising Cattleya Astron and C. Hardyana alba, as well as a nice form of Læliocattleya Thurgoodiana. Others of interest were Dendrobium Phalænopsis and several Cypripediums of merit.

A. Hanmer, Esq., Buxton (gr. Mr. W. Giles), staged a good form of Cattleya Hardyana alba and Læliocattleya Gothaurea, the latter of fine formation and bright colour.

Messrs. A. J. Keeling & Sons exhibited Lælia pumila alba, Lc. Carmencita aurea, the pretty Cyp. Ruby and a fine plant of Angræcum Sanderianum, with a pendulous spike of white flowers.

Mr. D. McLeod, Chorlton-cum-Hardy, staged Cyp. Germain Opoix and Cyp. Gaston Bultel, both in fine condition.

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NOTES.

MR. JAS. O'BRIEN.—Many of our readers will regret to learn that owing to advanced years, Mr. James O'Brien, V.M.H., has decided to retire from the secretaryship of the R.H.S. Orchid Committee in January next. He has filled this post ever since the committee was established in March, 1889, having previously been a member of the Floral Committee. A testimonial, which will probably take the form of a purse, is being considered, and further particulars will be given in our January issue.

PRINCE SHIMADZU.—In a letter recently written to the Editor, Prince Shimadzu says that "Probably the news of the awful earthquake gave you a shock. Mercifully, I did not suffer. All my plants are safe, except just two or three. The Orchid houses are far stronger than an ordinary house. But there is one thing I am worried about: almost all the labels have jumped out of the pots by the shock and I cannot make out which were their original positions. The building of my new Orchid houses has had to be postponed, as the materials collected for that purpose have all been burnt. However, they will be built rather late in 1924, but not in time for the next summer."

ORCHIS INCARNATA.—The *Journal of Botany* for November, 1923, contains an exhaustive article on The British Forms of Orchis incarnata, by the Rev. T. Stephenson, D.D. and T. A. Stephenson, D.Sc. The authors state that "amongst the Marsh Orchids, O. incarnata, L. should probably be given the premier position, and it is unfortunate that it should so long have been regarded as a mere form of O. latifolia": and subsequently, "we are inclined to think that O. incarnata is the basal species of the whole Marsh Orchis group." Following a general description of O. incarnata, it is remarked that this species grows in the wettest situations, often in bogs and standing water, and that it is also found in great numbers in damp, sandy places near the sea. Useful descriptions are

given of the varieties pulchella, dunensis and ochroleuca. This valuable article is accompanied by an excellent plate, showing two spikes collected at Shawford, near Winchester, while text figures of four types are given for comparison.

MR. JULIUS ROEHRS.—We deeply regret to announce the death of Mr. Julius Roehrs, which took place on October 31st, from cerebral meningitis, after a few days illness. Mr. Roehrs was President of Julius Roehrs Company of Rutherford, N.J., U.S.A., and was at all times a great lover of Orchids, as well as of stove and greenhouse plants.

EUROPEAN ORCHIDS.—The *Album des Orchidées d'Europe*, published in 1889, and out of print since 1905, has been so frequently enquired for, that the author, M. Henri Correvon, of Floraire, Chêne-Bourg, Geneva, has decided to publish a new edition, with six new coloured plates from originals by Mrs. Godfery, representing seven species from the Mediterranean littoral. A total of 67 species of European Orchids are represented in 66 plates, with descriptive text. To subscribers who enter their names before December 31st, 1923, the price will be 20 francs, the same as for the 1899 edition. After January 1st, 1924, the price will be raised to 25 francs. The coloured plates, admirably reproduced, comprise all the European Orchids, except some types of Ophrys, Serapias, etc., belonging to the most southerly areas of Italy, Greece and Spain. The text in the new edition is slightly abridged.

MANCHESTER ORCHID SOCIETY.—The next meetings of the Manchester Orchid Society will be held on Thursday, December 6th and 20th. In the New Year the meetings will be transferred to the Houldsworth Hall, 90 Deansgate, Manchester, and be held on Fridays, January 18th, February 15th, 29th, March 14th, 28th, and April 25th. The Committee will sit at 12 o'clock.

THE ORCHID CLUB.—A formal meeting for the inauguration of the Orchid Club was held at Manchester on November 9th, when the following members were elected to the Committee: President, Fred. Hardy, Esq.; Vice-Presidents, F. J. Hanbury, Esq., the Hon. H. D. McLaren, G. F. Moore, Esq., Sir William Thom; Hon. Treasurer, J. H. Walker, Esq.; Hon. Secretary, B. J. Beckton, Esq.; Dr. Craven Moore, Dr. R. N. Hartley, W. Morton Jackson, Esq., and F. T. Paul, Esq., F.R.C.S. The meetings will be held in the Houldsworth Hall, Manchester.

DENDROBIUM LEEANUM.

IN the year 1891, Dendrobium Leeanum was described by Mr. Jas. O'Brien as a handsome new species imported with D. Phalænopsis var. Schrœderianum by Messrs. Sander (*Gard. Chron.* 1891, ii. p. 640, fig. 88). It was stated to have pseudo-bulbs about three feet high, and with sprays of flowers arranged after the manner of D. superbiens, but differing in all points, more especially in the open form of the lip. It was named in honour of Mr. W. R. Lee and received a First-class Certificate when exhibited at the Royal Horticultural Society, November 10th, 1891. A darker variety, distinguished as Leeanum atropurpureum, was given an Award of Merit, October 23rd, 1900, when exhibited by Sir Fred. Wigan.

The late Mr. Rolfe suggested that D. Leeanum might be a natural hybrid between D. Phalænopsis and D. superbiens (*Orchid Review* iii. p. 334), as it combines the characters of both. He also pointed out that in superbiens, the crest consists of three serrulate erect keels at the base of the front lobe, but in Phalænopsis the disc is simply puberulous without any crest; D. Leeanum has a crest as in the former, but reduced to about half the size.

On the first page of the present volume, a note occurs respecting D. Phalænopsis, and concludes with the remark that it would be interesting to learn if any of our readers have been successful in obtaining ripe seed, for apart from D. Leeanum, the natural hybrid between Phalænopsis and superbiens, no other hybrid of Phalænopsis has been recorded.

Further evidence of considerable value in the elucidation of the Leeanum problem has just been brought to England by Viscount Sohma. It takes the form of an extensive series of water-colour drawings showing no less than forty-one flowers of seedlings that have been raised between D. Phalænopsis and superbiens in the Imperial Botanic Gardens at Shinjik, Tokyo. These plants commenced to flower when six years old. The first drawing is dated November 22nd, 1920, and the last, May 6th, 1921. Coloured drawings of both the parents show that these two plants are those generally accepted as superbiens and typical Phalænopsis. The forty-one seedlings vary in colour from light rose-pink to dark-crimson, in fact, to a deeper colour than that possessed by either parent. In seventeen of the flowers depicted, the sepals are margined with a whitish area that is characteristic of superbiens. In whatever degree of colour that exists in the respective flowers, there is generally a venation of darker or more intense pigment.

Looking at this collection of forty-one flowers of Leeanum, one is astonished at seeing such a wide variation in their form and colour. They present a variation greater than is generally produced by the crossing of

two species of undoubted purity. We are lead to enquire more deeply into the constitution of the superbiens parent: is it a true species or a natural hybrid? Although D. Phalænopsis has been imported in tens of thousands, D. superbiens has always been a scarcer plant. It is true that comparatively small lots of the latter have been received at different times, but this fact does not disprove its being a natural hybrid.

D. bigibbum, superbiens and Phalænopsis have all been collected on the islands of Torres Straits and the adjacent coasts of Queensland and New Guinea. A fourth plant, described as D. Fitzgeraldii, is believed to be a natural hybrid between Phalænopsis and undulatum. Fitzgerald remarks that its characters would almost lead to the conclusion that it is a variety of undulatum, and the less robust growth and colour of the flowers to the supposition that it has arisen from hybridisation between D. undulatum and D. bigibbum, or some other of the lilac species found in Australia. He also states that the flowering period is April, and that a plant in the possession of Capt. Broomfield continued in flower for thirteen months, producing at least twelve spikes at a time, the individual flowers lasting three months.

In conclusion, we can only hope that still further evidence on these elegant and interesting plants may come to hand from someone well acquainted with the localities in which they exist naturally. It may then be possible to determine with a greater degree of accuracy the precise character of D. superbiens.

CYPRIPEDIUM ALBION.—A few years ago, Mr. F. C. Puddle, when in charge of the Scampston Hall collection, raised Cypripedium Astarte by crossing insigne Sanderæ with Psyche (bellatulum × niveum). Being interested in watching the results of selective inbreeding, he followed this up by crossing niveum var. Goliath with Astarte, and the seed of this had just germinated when the collection was dispersed. Fortunately, a number of the seedlings have been traced and purchased by the Hon. Henry D. McLaren, whose collection at Bodnant, Tal-Y-Cafn, is now in charge of Mr. Puddle. Some of these seedlings have recently reached the flowering stage, and when one of them was exhibited at the Royal Horticultural Society on October 6th, a First-class Certificate was awarded. This particular plant, distinguished as the Bodnant variety, bore a charming flower of wax-like nature, porcelain-white, and with a very few faint dots of colour on the sepals and petals.

ORCHID CULTURE IN THE UNITED STATES OF AMERICA.—Owing to pressure on our space, the continuation of the article bearing the above title is unavoidably held over until our next issue.

ORCHIDS IN THE BOTANIC GARDENS AT TOKYO.

THE raising of hybrid Orchids in the Imperial Botanic Gardens at Shinjik, Tokyo, is being carried on with considerable success, and many interesting, as well as beautiful novelties have recently been in flower. In their production, great credit is due to Viscount T. Sohma, who is keenly interested in Orchids, more especially in the scientific work carried on in the above mentioned Gardens.

In recording the various hybrids, coloured drawings of both parents are generally first prepared, these being followed by the different varieties as they appear amongst the offspring. By this means events of educational value are permanently recorded. On his visit to Europe, Viscount Sohma has brought with him a number of these drawings and kindly lent them to the Editor. As several of them represent hybrids not previously recorded, the following notes are of interest.

Sobralia Shinjik (macrantha × dellensis) is a novelty that commenced to flower when the plants were about three years old. The flowers are of medium size, and of the nine varieties painted, the colour ranges from blush-white to rose-purple.

Sobralia Baron Ohara (virginalis × Amesiæ) is represented by drawings of both parents and of eight hybrids. The flowers are large, one being of rich rose-purple colour, the others pale-blush shaded with light-mauve. The plants were about six years old when commencing to flower.

Læliocattleya Viscomte Fukuba (L. purpurata × Lc. highburiensis) varies from flowers resembling the Lælia parent to those having a bronze-red colour. Eight varieties have been recorded.

Cattleya Shinjik (maxima × Trianæ) is a primary hybrid with flowers of medium size, some examples show the purple lines around the labellum that are characteristic of the maxima parent.

Cypripedium Shinjik (Germinyanum × Alcibiades) is a pleasing hybrid carrying forward the good qualities of the latter parent, as well as of villosum contained in Germinyanum.

Stanhopea Shinjik (tigrina × saccata) flowered when six years old. It is an interesting and elegant hybrid, the large flower showing to advantage the well-known characters of tigrina.

Cœlogyne Shibata (speciosa × flaccida) was raised by Mr. Shibata, a Japanese amateur. The two coloured drawings of this hybrid depict the habit of the bulb, leaf, bud, flower and labellum. When open, the flower is greenish-white with the lip stained with brown.

Cymbidium Schlegelii (Wiganianum × insigne) is a popular hybrid that is represented in the Shinjik gardens by no less than twenty-two distinct varieties, all of which are recorded by water-colour drawings.

Cymbidium Alexanderi (eburneo-Lowianum × insigne) is also cultivated, and eight pleasing varieties have been recorded in similar style.

Calanthe Baron Ohara (Sedenii var. Harrisii × Gatton Alpha No. 6) is represented by drawings of sixteen varieties that range from large pure-white flowers to those of a pleasing rose-colour. The variety Sunrise is the largest, the sepals and petals being of a beautiful rose tint, the lip almost white and with a light-lemon coloured disc in the centre. In another variety a striking contrast is made by the sepals being nearly white, while the outer areas of the petals and lip are rose coloured.

Calanthe Prince Fushimi (Sedenii var. Harrisii × Butterfly) has been produced with this parentage, and also through the use of Sedenii var. Bella. Following the coloured drawings of the parents, no less than 18 elegant varieties are depicted, some being pure-white as in the Harrisii variety, others of deep rose colour.

Calanthe Viscomte Fukuba (Butterfly × vestita var. oculata gigantea) is another meritorious hybrid of which ten varieties have been pictorially recorded.

Calanthe Shinjik (Butterfly × Veitchii) is a very showy hybrid, and of which ten distinct varieties have been drawn. The variety called Viscount Sohma is unusually fine, being of a bright carmine colour evenly suffused throughout all the segments. The variety Baroness is large, and of rosy-red colour, the sepals slightly paler.

Calanthe Our Prince (Kenneth × Bryan) shows remarkable variation, as is recorded in the 13 distinct flowers that have been painted.

Calanthe Tokyo (Veitchii × Bryan) is represented by six varieties, in one of these the lip is unusually large, another is snow-white, except for a vivid blotch of carmine on the base of the lip, thus creating a most attractive flower.

Dendrobium Leeanum, represented by no less than 41 drawings, has always been an interesting plant, and further notes on these are given on another page.

Vanda Moorei, collected by Viscount Sohma in Burmah, flowered in Japan in February, 1923, the spike bearing ten flowers. A note on this natural hybrid was given on page 298. Another painting shows a very fine variety of Vanda teres which flowered in June, 1922.

Miltonia spectabilis is also well cultivated. The excellent drawing of this species depicts a white flower with the base of the lip bearing a radiating blotch of purplish colour, the side wings on the column being of similar colour. It is a very distinct variety.

We sincerely hope that the good work already accomplished in the Shinjik Botanic Gardens will be followed by other results of equal interest, and that the series of coloured drawings will also be continued.

NEW HYBRIDS.

NAME.	PARENTAGE.	EXHIBITOR.
Brassocattleya Alexandrina	Bc. Digbyano-Mossiæ × C. Cowaniæ ...	McBean.
Brassocattleya Maronel	Bc. Mad. Chas. Maron × C. Mendelii ...	Stuart Low.
Brassolæliocattleya Alfred Mollet ...	Blc. Morna × C. Hardyana	Flory & Black.
Brassolæliocattleya Floss Flora ...	Lc. Soulange × Bc. Ilene	H. T. Pitt.
Brassolæliocattleya Geoffrey ...	Lc. Geoffrey × B. Digbyana	C. J. Lucas.
Calanthe Baron Ohara	Sedenii var. Harrisii × Gatton Alpha ...	Tokyo Gardens.
Calanthe Our Prince	Kenneth × Bryan	,, ,,
Calanthe Prince Fushimi	Sedenii var. Harrisii × Butterfly	,, ,,
Calanthe Shinjik	Butterfly × Veitchii	,, ,,
Calanthe Tokyo	Veitchii × Bryan	,, ,,
Calanthe Viscomte Fukuba	Butterfly × vestita	,, ,,
Cattleya Dædalus	Portia × Hassallii	Cowan.
Cattleya Hardyata	Hardyana × Fabiata	McBean.
Cattleya Mordana	Moira × Hardyana	Stuart Low.
Cattleya Mrs. Gratrix	Lady Veitch × intertexta	Sanders.
Cattleya Phœbe	Dowiana aurea × Lady Veitch	Cowan.
Cattleya Queen Aurea	Dowiana aurea × Queen of Sheba ...	Sanders.
Cattleya Rotunda	amabilis × Freya	Sir J. Colman.
Cattleya Shinjik	maxima × Trianæ	Tokyo Gardens.
Cattleya Stella	Enid × Thurgoodiana	McBean.
Cœlogyne Shibata	speciosa × flaccida	Shibata, Japan.
Cymbidium Proserpine	erythrostylum × Schlegelii	Sanders.
Cypripedium Charlestonii	Charlesworthii × Lord Ossulston	Cowan.
Cypripedium Harrettianum ...	Harrisianum × Pollettianum	,,
Cypripedium Ijuin	Tracyanum × Actæus	Stuart Low.
Cypripedium Shinjik	Germinyanum × Alcibiades	Tokyo Garden.
Læliocattleya Baron Coffinet ...	C. Hardyana × ?	Armstrong & Brown.
Læliocattleya Golden Eagle ...	Lc. luminosa × C. Rex	,,
Læliocattleya Phantasy	Lc. Thyone × C. Maggie Raphael ...	Flory & Black.
Læliocattleya Radina	L. xanthina × C. radiata	Stuart Low.
Læliocattleya Rosy Morn	C. Armstrongiæ × Lc. Olivia	Armstrong & Brown.
Læliocattleya Viscomte Fukuba ...	L. purpurata × Lc. highburiensis	Tokyo Gardens.
Odontonia Philosopher	M. St. Andre × Odm. Harwoodii	H. T. Pitt.
Sobralia Baron Ohara	virginalis × Amesiæ	Tokyo Gardens.
Sophrolæliocattleya Pervanch ...	C. Syros × Slc. Marathon	H. T. Pitt.
Stanhopea Shinjik	Tigrina × saccata	Tokyo Gardens

NOTE :—Plants above referred to as of Tokyo Gardens were raised in the Imperial Botanic Gardens, Shinjik, Tokyo.

DR. H. O. FORBES'S NEW GUINEA PLANTS.—Dr. Forbes's collection was made in 1885-1886, and in the latter year, Mr. H. N. Ridley gave an account of the Monocotyledons (*Journ. Bot.*, xxiv. 321), Though new species have been described from Dr. Forbes's plants from time to time in papers dealing with the Flora of New Guinea, the bulk of the collection has not been worked out. In the light of more recent work, some revision has been found necessary in Mr. Ridley's enumeration, and this has been undertaken by Dr. A. B. Rendle, who, in the *Journal of Botany* for November, 1923 (supp. pp. 54, 55), deals with the Orchidaceæ.

ORCHIDS AT DAISY BANK, MANCHESTER.

DURING recent years the Orchid collection of Bertram J. Beckton, Esq., Daisy Bank, Irlams-o'Th-Height, Manchester, has been considerably enlarged by the acquisition of many interesting plants, most of them rare species seldom seen in cultivation. Unlike the collections that are principally composed of one class of Orchid, such as Odontoglossums, which chiefly flower in the spring time, or of Cypripediums that are at their best in the autumn, Mr. Beckton possesses an assemblage of plants that represents the Orchid family in as wide a sphere as the conditions of his garden permit, consequently, during every week of the year there is an almost equal amount of interest to be obtained from his plants. But so far as the flowering period is concerned, the aim has always been to acquire plants that bloom during the late autumn, winter and early spring months. During the winter months a fine display of flower is generally maintained, except during the prevalence of a thick fog. Good cultivation is everywhere visible and ample proof of the suitable climatic conditions is afforded by the rapid manner in which new growths are made by the majority of the plants.

Calanthes are of great value in maintaining the winter supply of bloom, and although during the last few years some good results have been obtained from seedlings raised in this collection, Mr. Beckton is far from satisfied that all that can be accomplished in this genus has been produced. The scandent Epidendrums are great favourites at Daisy Bank on account of their long-lasting nature and bright colouring. Among them are the rare E. arachnoglossum candidum, and E. kewensis (evectum × xanthinum). A plant of considerable interest is Ancistrochilus Rothschildianus, which was figured and described as a new species in the *Gardeners' Chronicle*, January 26th, 1907, but it has not yet flowered in this collection. Another species of which the flowering is awaited with interest is Nanodes Lankesteri.

There is here to be seen Batemania Colleyi, a species that has been known to botanists for just on ninety years, and whose generic name was given to it by Lindley in honour of the celebrated James Bateman, of Knypersley Hall, Cheshire, the specific name being in remembrance of Colley, who collected plants for Bateman in Demerara. Two comparatively new species of Maxillaria exist in M. Fletcheriana, a native of Peru, and which first flowered under cultivation in April, 1913, when it received an Award of Merit from the Royal Horticultural Society; and in M. elegantula, allied to M. grandiflora and imported with M. Sanderiana.

A healthy plant of the very rare Odontoglossum Londesboroughianum receives special care, for its spikes of golden-yellow flowers will prove of great interest whenever they appear; it is many years since an example has been exhibited in bloom. There is also a good plant of Oncidium

hæmatochilum, formerly regarded as a rare species, but now believed to be a natural hybrid between luridum and Lanceanum, for it exhibits characters of both these species. Another rarity exists in Sarcochilus Ceciliæ, a Queensland species described in 1865, but probably not cultivated in England until 1910, when it flowered in the Gatton Park collection. It is a dwarf tufted plant bearing erect spikes of small pink coloured flowers.

CYPRIPEDIUM BALLYHANDY.

Of the elegant Arachnanthe Cathcartii, figured in the *Orchid Review*, vol. xxx., p. 169, there is a vigorous plant, and although this and A. Clarkei are shy-flowering species, they are both flowering for the second season in succession. Of the Orchids that possess a pendulous habit, an interesting example can be seen in Masdevallia deorsa, the leaves of which are about a foot long and invariably maintained in a downward direction. The only successful means of growing it is in a small pot or pan suspended from the

roof. Another plant that requires to be suspended in order that its pendulous spike of flowers may be seen to advantage is Cœlogyne Veitchii, of which there is a fine example in this collection. The flowers are pure-white without any markings.

Broughtonia sanguinea is one of the good old species that our ancestors used to cultivate with apparent success, in fact, it was one of the earliest species cultivated in England, having been sent to Kew Gardens in 1793. The usual method of culture is to secure the plants to block or slabs of wood and with moss around the roots. A strong light is necessary to produce the rich crimson coloured flowers. Dendrobiums are always favourite plants for decorative work. Mr. Beckton takes a special interest in D. arachnites and D. asperifolium, both of which succeed well under the treatment given them. Some of the finest plants of Thunia are in this collection, and it is rarely that such extraordinary vigour is witnessed.

An uncommon terrestrial Orchid that grows well here is Ipsea speciosa, the erect scapes are produced from the base of the leaves and carry several large flowers of rich orange-yellow colour. Calanthe Angela is also cultivated and forms a beautiful object when in full flower. In other positions are several rarities, including Oberonia cylindrica, Leptotes unicolor and Eria macrantha, while mention may also be made of Pleurothallis ornata and Angræcum montanum.

Among the Cypripediums special mention may be made of C. Ballyhandy (Alcimeda × Antinous), recorded in 1920, and producing a very pretty flower of honey-yellow colour, spotted and marked with bright brown, and having a clear white area around the dorsal sepal. Our illustration of this is from a photograph taken by Mr. Beckton, who has made many similar records of other choice plants.

Zygopetalums are favourites in this collection. A fine sight was produced by Z. Mackayi on a dull November day with seven flowers on a spike and filling the house with a delectable perfume. Two other fine representatives of the genus are to be seen in Z. rostratum and Z. Ballii, but they are without perfume. The chief trouble experienced in cultivating Zygopetalums is yellow thrip, the growths of these plants being so long and tubular that much difficulty is found in finding the pests. A constant watch has to be kept on all the plants. A very pretty plant well worth more general cultivation is Bletia Shepherdii, for its deep reddish-purple flowers are produced during the winter months. A reminder of early-day collections exists in Selenipedium caricinum, which has several beautiful features.

Mr. Beckton possesses a handsome plant of Aërides Sanderianum measuring four feet in height and with foliage from the base to the top; it is now

A WINTER DISPLAY OF BLOOM IN THE ORCHID HOUSE OF BERTRAM J. BECKTON, ESQ. PHOTOGRAPHED DEC. 24TH, 1922

producing two spikes, each with no less than forty flowers, and creating a fine example of successful culture. One of the gems of this collection is Oncidium splendidum holoxanthum, with flowers entirely yellow and so rich in this colour that when sent to Mr. F. Bolas for the purpose of having a painting executed he replied that he would do his best, but was afraid there was no colour that would do the flowers justice.

Electric light, produced by a private plant, is everywhere installed, and even the boiler has an electric fan fitted to the chimney so that the draught can be accelerated when necessary. Although only a few of the many Orchids in this collection have been mentioned, full praise is due to Mr. W. A. Stewart for the able manner in which he cultivates them, they are clean, very healthy and yield an abundance of bloom in their respective seasons.

CULTURAL NOTES.

By J. COLLIER, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

WE have now reached one of the most sunless months of the year, and great care should be excercised in regulating the temperatures and atmospheric conditions of the Orchid houses; endeavour to keep the temperature as even as possible. During frosty weather, when fire-heat is necessary, the atmosphere should be prevented from becoming too dry. On bright mornings following frosty nights, as soon as the temperature commences to rise to the proper degree, every available space should be moistened by syringing bare spaces between the pots, the paths and underneath the hot-water pipes. The East Indian and Cattleya houses should be damped between 2 and 3 p.m. One damping should suffice for the Odontoglossum house, but at all times the amount of atmospheric moisture should be regulated according to the weather.

TEMPERATURES.—The winter night temperatures should read somewhat as follows. East Indian house, 63° to 68°; Cattleya house, 58° to 63°; Cool or Odontoglossum house, 50° to 54°. On very cold nights the lower temperatures will be sufficient, as an excess of fire-heat may prove harmful to the plants. During very cold weather the temperatures should be about five degrees warmer at mid-day than in the early morning, but the thermometer may be allowed to rise several degrees higher during periods of bright sunshine. If lath blinds are fixed to the houses, they may be lowered during very cold nights; if permanent blinds are not used, the glass may be protected by some other covering, such as archangel mats. Their use will prevent the temperature from fluctuating, economise fuel, and keep the atmosphere from becoming very dry.

VENTILATION.—Admit fresh air whenever it is possible to do so without

lowering the temperatures or chilling the plants. Air is best admitted through the bottom ventilators, which should be arranged so that it becomes warmed somewhat by passing over the hot-water pipes. The ventilators on the side sheltered from the wind should be opened first, and, as the temperatures in the houses rise, those on the other side may be opened a little to cause the air to circulate among the plants. Orchids now in bloom are various forms of Dendrobium Phalænopsis, the colour of the flowers ranging from pure-white to rich crimson-purple. If these plants are placed in a Cattleya house while in bloom they will last in good condition for quite a long period. After the spikes are cut, place the plants in a house where the temperature does not fall below 60°, in a position well exposed to the sun's rays. When their growths are well matured, very little water will be needed during the long season of rest, afford them just sufficient to prevent the pseudo-bulbs from shrivelling.

PHALÆNOPSIS.—Plants of Phalænopsis amabilis, P. Schilleriana, P. Sanderiana, and others of this genus are developing their flower spikes. These plants should be watered with great care during the winter, as an excess of moisture at the roots may set up decay in the leaves. The plants should be examined each morning, and if the sphagnum moss is dry it should be lightly sprinkled, as soon as the temperature rises above 65°. At the same time damp the sides of the receptacles and the roots that are clinging to them with tepid rain water. The flower spikes should not be allowed to remain on for any length of time after the flowers are developed or the plants will be weakened and permanently injured. The plants should be afforded a light position, but not exposed to direct sunshine.

CALANTHES.—Plants of the early flowering varieties of Calanthes, such as the C. vestita section, are developing flower spikes. After a few of the blooms are expanded, the plants may be removed from their warm growing quarters to the Cattleya house, where the flowers will last in good condition for a considerable time; as cut blooms they will not fade so quickly as when brought from a close, moist atmosphere. The plants will require but very little water, as they should be afforded a thorough season of rest after the inflorescences are cut by being placed in a dry position, near to the roof-glass, in a temperature that does not fall below 60°. If space is limited the bulbs may be removed from the pots, the soil shaken from the roots, and stored in boxes, placing silver sand around the bases, but it is preferable to leave them in the pots, as they then start more freely into growth in the spring.

MILTONIAS.—Plants of Miltonia vexillaria, M. Bleuana and their many hybrids are growing freely, and the roots are very active; they should be afforded enough water to keep the sphagnum moss on the surface in a fresh growing state, and be placed in a light position in an intermediate tempera-

ture. All Miltonias, when making their growths, are subject to attacks of thrip, so it is essential for the future welfare of the plants to make a periodical examination for these pests. The young leaves while growing frequently stick together so firmly that they soon become crumpled if not watched and carefully separated, this may be done by the aid of the handle of a budding knife. A brown, damp-looking outer sheath at the base of the young growth often clasps the stem so tightly that new roots push upwards instead of growing into the compost. This sheath should be removed in small pieces without causing injury to the plants. Miltonia Rœzlii needs a higher temperature and more atmospheric moisture than those already mentioned. It is more or less in active growth throughout the year, and the roots should be kept moist at all times. They do well if given a light position in the Cattleya house during the winter. M. Phalænopsis grows best when suspended, or placed on a shelf, with its leaves almost touching the roof glass; a warmer temperature may be given with advantage. M. candida, M. Regnellii, M. Clowesii, and others of this section, should be staged in an intermediate house and kept on the dry side all through the winter.

LÆLIAS.—As plants of L. autumnalis and L. albida pass out of flower they should be given a period of rest, affording them only sufficient water at the roots to keep the pseudo-bulbs plump. L. anceps in its numerous varieties are opening their flowers, and the plants should be kept moist at the roots. After the flowering season is over they should be given treatment similar to the other species.

CATTLEYAS.—Plants of Cattleya Warneri, which are growing actively, should be kept in the warmest part of the Cattleya house and placed in a light position, sufficient water should be applied at the roots to keep the compost moist, until the flowers are open. The work of repotting should be done immediately after the flowers are removed.

LÆLIA PUMILA.—This is the flowering period of these charming little plants, and after the flowers have faded, and root action is evident, any necessary repotting or top dressing may be done, shallow Orchid pans without side holes form the most suitable receptacles, which should be suspended about two feet from the roof glass of the Intermediate house. The pans should be well drained, as only a small quantity of soil is necessary; it is important that water passes through freely on application, and very little is needed until after the new roots commence to penetrate the new compost. During the resting period just sufficient should be afforded to keep the pseudo-bulbs in a rigid condition. The proper time for repotting these Lælias is when they begin to form new roots at the base of the present season's growth. Exceptionally good drainage is necessary, and the best compost for them is good coarse osmunda fibre.

ORCHIDS AT JARVISBROOK, SUSSEX.

FOR generations past the name of Low has held an important position in the annals of Horticulture. Our grandparents visited Messrs. Low's when their Nursery was at Clapton, and our fathers when a much larger establishment was built by this firm at Bush Hill Park. The present generation of Orchid enthusiasts know Messrs. Stuart Low & Co., as of Jarvisbrook, Sussex; where an immense area of glasshouses has been constructed within the last twelve years. Thus, for almost a century this firm has been in the front rank of horticulture, not only in the discovery of new species, but in the growing and exhibiting of superb plants and meritorious varieties.

Cymbidium Lowianum is of sufficient importance to record for all time the name of this firm, for but few Orchids have been, and are so widely cultivated, not only by amateurs with recognised collections, but also by many possessing but a small greenhouse, and this often filled with a miscellaneous collection of plants. Even to-day, awards are being granted to hybrids obtained from this well known Cymbidium. Another famous introduction is Dendrobium Wardianum Lowianum, which flowered in 1875 and has since been imported in tens of thousands.

The Jarvisbrook establishment, devoted to the raising and growing of Orchids, is under the special control of Mr. Edward Tack, who for many years has been closely associated with the producing and growing side of the business. He is ably seconded by a staff, who, for the most part, have grown up with the business from boyhood. Miss Eileen Low uses this establishment for her headquarters when home from her travels in other countries where the Orchid is loved and valued. To all of these I am indebted for the trouble that was taken to ensure my seeing all that was possible of the extensive and comprehensive stock in the comparatively short time at my disposal.

The glasshouses are arranged in two distinct blocks. In one of them, at the North-end, there is a corridor two hundred feet in length, out of which open eleven houses, for the most part 120ft. in length, forming in itself a complete nursery; grading upward from the seedling-house at one end to the large specimen flowering plants at the other, the packing and work-room being at the extreme end. This north corridor is a most useful place for retarding and regulating the flowering period of certain of the plants.

On entering the first large house, measuring 20ft. in width, a splendid lot of Lc. luminosa aurea makes an imposing show on the centre stage. This is a popular hybrid that here makes bulbs above the average length, and is of an exceptionally free-flowering nature. One plant carried a spike

of five large flowers, having clear citron-yellow sepals and petals and a rich purple lip; a truly noble specimen! On the side benches was noted a large batch of Cattleya labiata that will yield quantities of bloom, which will be maintained until Christmas by plants that are retarded. It is recognised that this species is now superseded by many of its fine hybrids, such as C. amabilis, C. Bardic, C. Peetersii, Lc. Bella, and others, all midwinter bloomers. Another invaluable winter flowerer is C. Maggie Raphael alba (aurea × Trianæ), while on the broad side stages are small quantities of the species C. Schrœderæ, C. Trianæ, C. Harrisoniæ, and C. Loddigesii, the last mentioned including the elegant pure-white form known as Stanley's variety. Here also is a collection of varieties of the albino forms of C. labiata At the end of this house I noticed some strong plants of Stanhopea, including Graveolens, insignis, Bucephalus, and Tigrina. One of these, Tigrina, in a basket, was pointed out to me as having just carried seven fine flowers.

In the next house of similar dimensions, the centre stage contained a splendid batch of Lc. Aphrodite, vigorous plants of an exceptional type, producing flowers with rayed sepals and petals. These plants formed an attractive sight when exhibited at the Chelsea Show last Spring. There is also a good type of Lc. eximea in large numbers, as also Lc. Bella, which though now old, is still considered a good hybrid on account of its freedom of flowering in the dead of winter in this sunless climate. Lc. St. George, another winter bloomer, also promises well. It is from this batch that several notable varieties have already flowered. Groups of the brilliantly coloured Lc. Hyeana and Cattleya Dupreana are here represented by plants in perfect condition and of flowering size, C. Carmen (Lueddemanniana × gigas) is also much in request, for its large flowers are frequently borne five on a spike. The whole of the East side of this stage is occupied by Brassocattleyas, comprising a wide range of the best primary and secondary matings. Along the side stages are masses of Cattleya Hardyana, C. Octave Doin, C. Gildenii (Maggie Raphæl × Hardyana), C. armain-villierensis, and other popular vigorous growing hybrids. Mention may be made of a rarity in Lælia Perrini nivea, pure-white, except for a faint rose tinge on the labellum. Here one sees in its home surroundings the elegant Cattleya Dusseldorfei Aquinii a hybrid which was fully described in the *Orchid Review*, vol. xxx, p. 202.

In the first of the smaller houses, which are each about 10ft. wide and contain 1,000 sq. ft. of available bench space, is found a batch of the beautiful and free-flowering Lc. Alex, bearing rich bronze-yellow flowers, and of special interest from the many fine varieties that have appeared. The first received an F.C.C. in 1915. Another valuable cross—of which there are many still to flower—is Blc. Truffautiana (Bc. Mrs. J. Leemann × Lc. luminosa). Several varieties have already received recognition from

the Orchid Committee, notably Low's var., which bears immense yellow flowers, and the rich rosy-bronze variety Triumph (F.C.C.), which attracted universal admiration at the last Chelsea Show. A striking yellow hybrid of recent introduction was also noticed in Lc. Mrs. Medo (C. Venus × Lc. luminosa aurea) to which a couple of awards have already been given. The brilliant gold and crimson colouring of this plant will be fresh in the minds of those who saw the variety Sovereign (A.M.) at the recent Holland Park Show.

Passing to the adjoining house, thousands of Brassavola hybrids were noticed. They comprise such sterling things as Bc. Ruby, a beautiful grower, Bc. Hannibal, of fine colour, and the plant of Bc. Villa Jeanne to which an A.M. was given at the last Chelsea Show. Blc. Muriel is another meritorious hybrid, as also is Blc. Everest (Lc. Canhamiana × Bc. Mrs. J. Leemann), whose free-flowering habit and bold creamy-yellow flowers make friends for it wherever it is shown. An uncommon plant is Cattleya maxima albens, white with a slight rosy-pink on the lip. Beautiful pure-white flowers are produced in profusion on Cattleya Alcimeda alba of which there is a fine batch, and an equally attractive hybrid is Cattleya Enid alba (Warscewiczii var. F. M. Beyrodt × Mossiæ var. Sheila), which was raised in the collection of the late Mr. Leemann and bears large white flowers having the lip mottled with unusually bright purple. Here is seen a plant of Cattleya labiata Purity, which, with the variety Harefield Hall, are two of the purest of the white forms. Blue-tinted varieties are seen in C. labiata cœrulea and C. labiata glauca, the latter being more of a slate-blue; while other plants noted of this colour were C. intermedia cœrulea and the small, but very beautiful Lælia Dayana delicata, with its unique lip; probably steps to be used in the creation of a blue race?

Lc. Schrœderæ is well represented by a splendid batch, the majority being now in sheath. Of C. Trianæ, a few choice named varieties prove how much variation exists in the flowers of this one species. Another of these long houses is almost entirely filled with unflowered hybrids of Sophrocattleyas, Sophrolæliocattleyas and Læliocattleyas made with Sophronitis grandiflora direct or with secondary crosses. The next house contain plants of the popular Odontoglossum crispum of selected type, while in the adjoining structure one comes across Oncidium varicosum, of recent introduction, many of them throwing up spikes. A much cherished variety which first flowered fifteen years ago, producing pure-yellow flowers, is still under cultivation here. It is O. varicosum concolor. Here may be seen small collections of Cochlioda vulcanica, C. rosea, Odontoglossum Uro-Skinneri and its variety album, O. coronarium, now rather rare, and hybrids of O. Edwardii, such as Royal Purple and Groganiæ, which are grown for the sake of their colouring.

A most interesting reminder of the days when blotched crispums were eagerly sought after among the importations then arriving is seen in a batch of these historic plants. Most of the noted varieties are included, even Pittianum and the distinct solum, the latter still of value.

Amongst the species still found here are quite a number of Odontoglossum Harryanum and O. cirrhosum. In another house the whole of one side is filled with Odontiodas of various crosses, while on the other, amongst many choice Odontoglossum hybrids, are such interesting plants as Oncidioda Stuart Low and the deep blue Dendrobium Victoria Regina.

The next house is filled with warm-growing hybrids, amongst which is a wide selection of Sophronitis crosses, including the beautiful Sc. Sylvia, F.C.C., the richly coloured Sc. Dorea, Slc. November, Slc. The Pearl and many others. In this house may also be found two special plants: Cattleya Mendelii alba var. Stuart Low and Cattleya Warscewiczii alba var. Firmin Lambeau, both of which produce pure-white flowers. Mention may here be made of Cattleya Schilleriana, now a rare species in cultivation, and of Cattleya O'Brieniana alba, with its thick-textured flowers. The last two houses in this block are devoted to tiny seedlings—there are literally tens of thousands of them, and from a distance they look like a well-kept lawn, so numerous are the little green leaves.

At a short distance is the second immense block of houses. One of the largest is filled with spring-flowering Læliocattleyas, which during the early part of the year provide a grand sight, upwards of a hundred dozen blooms were open this spring at one time. The varieties are Lc. Dominiana, Aphrodite, Canhamiana, with its variety alba, callistoglossa, Martinetti; and Bletchleyensis. There is also a large batch of Oncidium pulvinatum represented by two types, one flowering in the summer, the other in winter. Oncidium splendidum is seen succeeding well with plenty of sun and heat. O. oblongatum is not only a vigorous grower, but produces effective spikes of bright yellow flowers, sometimes two hundred on a spike; the rare variety of this species known as citrinum is also in evidence. In another of these large houses Sobralias are grown in several varieties, their many reed-like stems forming a small jungle. Dendrobium Brymerianum is represented by some three score healthy plants, and Vanda Imschootiana by a healthy batch. The centre stage of a spacious house is occupied with many forms and varieties of Lælia anceps, L. autumnalis and L. Gouldiana, together with their hybrids, such as Lc. Eunice and Lc. Auto-Doin, etc. They are now gay with numerous tall spikes which will continue till Christmas. A corner of this house is devoted to Lælia species, plants at one time plentiful, but now somewhat scarce, such as L. flava, L. harpophylla, L. cinnabarina, L. Perrinii, L. tenebrosa, with its variety Walton Grange, L. xanthina, and varieties of L. purpurata, including the

albino form. Here is a fine block of Cymbidiums arranged on a tall stepped-stage and comprising amongst others the valuable Alexanderi album, the handsome erythrostylum, Tigrinum, Pauwelsii and Doris, together with some hundreds of strong plants of Cymbidium insigne. Phaius maculatus and P. Sanderianus must not here be forgotten, as also strong plants of Oncidium superbiens, O. lamelligerum, O. macranthum, and O. McBeanianum, mostly showing their flower spikes. Calanthes are cultivated with much success, together with a wide collection of Bulbophyllums and Cirrhopetalums. Probably a thousand plants of Cattleya Mendelii are growing in an adjoining house with a large number of C. Warneri.

Perhaps the most striking example of good cultivation is a side bench full of Cattleya Mossiæ—a species that is notoriously difficult to keep healthy for a long period—most of which plants have been in the country 10 or 12 years. Many of the best known varieties are amongst them. These houses open out of a lean-to corridor facing full south with a step-stage so arranged as to catch the utmost possible amount of sunshine. It is an ideal place for sun and moisture-loving plants, also for ripening-up late-made bulbs for flowering—quite the counterpart of the north corridor by the first block passed under review.

A house of smaller area, more easily maintained at the requisite temperature, is devoted to subjects from warm, moist climates; these include many Indian Dendrobiums, and a fine batch of the North Australian Dendrobium Phalænopsis; the latter were in perfection at the time of making these notes, the colour varying from rose-purple to blush tinted blooms, even to the pure-white form. Dendrobium superbiens is also here, but is a rarer plant. Vandas look well, and quite a chapter could be written on their history, but we can only mention that they include Sanderiana, Charlesworthii, Roxburghii, Dennisoniana, and the elegant Parishii var. Marriottiana, Stauropsis gigantea and Angræcum sesquipedale are both stately plants that rarely fail to attract attention. Two houses of smaller area are devoted to Cypripediums, the hybrids being numerous and represented by thousands of vigorous plants, Rothschildianum and bellatulum crosses being conspicuous. The species are also well represented, in fact, such old time plants as C. Stonei, C. caudatum, C. Lowii, C. barbatum, and others can still be seen here.

Another pair of houses is devoted to the culture of C. Warscewiczii (gigas), comprising just on 1000 strong plants, many with two and three leads. They were collected from diverse districts to secure a lengthened flowering period, which this season extended from early July to the end of October. There are also batches of C. Lueddemanniana, with its white varieties, and of Empress Frederick, one plant of the latter, though strong and vigorous, has never flowered, although fifteen years old.

Some fifty fine plants of Brassocattleya Ilene are a feature here. Cœlogyne Veitchii with its pendulous and delicate spike of bloom proved an attraction in another house. The genus Phalænopsis is well represented by healthy plants of P. Schilleriana, P. Stuartiana, and P. amabilis, in large quantities, which in due season should yield a fine display of bloom. One plant of Angræcum articulatum has been cultivated by this firm for over thirty years, while near it are good plants of the singular Bulbophyllum macrobulbum and the striking B. Fletcherianum; at the end of the house, plants of Eria armeniaca on wooden rafts revel in their surroundings. In this most interesting house a collection of different varieties of Miltonias appears to succeed remarkably well, while suspended from the roof was noted the rare Cymbidium Devonianum, a plant requiring skill to maintain it in a growing condition. Space is too restricted for an enumeration of everything, but the nursery is of easy access and close to the Crowborough Station of the L.B.S.C.Ry. section of the Southern Railway. I can testify to the fact that visitors are always welcome. "OBSERVER."

CIRRHOPETALUM GRACILLIMUM.

AT the Royal Horticultural Society's recent Autumn Show of Orchids, a well-flowered plant of Cirrhopetalum gracillimum was included in the group exhibited by J. J. Joicey, Esq., The Hill, Witley, Surrey (gr. Mr. J. Mackay). This species was originally described by Mr. Rolfe, in 1895, though it had been known since April, 1888, when it flowered in the collection of T. R. Jarvis, Esq., of Chelmsford. It is a graceful little plant, producing slender scapes about nine inches high, with an umbel of numerous reddish-crimson flowers. The lateral sepals are almost thread-like, about one and a half inches long, while the dorsal sepal and the petals bear numerous long ciliate hairs.

Respecting the fertilisation of the flowers, Mr. H. N. Ridley has remarked: "This is a very distinct little species, and, though the flowers are small, is really pretty. The lateral sepals are so bent and connate at the base as to form a tube with a circular mouth, over which hangs the violet lip. Their apices are separate and hang down, and are very slender and setaceous. The petals are rather long in proportion and strongly ciliate. The flowers form a perfect circle, and look like a series of very small parrots' heads, the lip representing the beak. They are (as indeed all the Cirrhopetala are) fertilised by a minute Dipteron, which usually settles upon the long pendent sepals and climbs up them till it reaches the lip, upon which it sits, and when it has gone beyond the balancing point I have seen one fly ride on the lips of all the flowers in an umbel in turn, but as a rule only one or two flowers at most are fertilised."

ORCHIDS AT YORK.

THE "THORPE LODGE" COLLECTION.

IT is rather surprising to learn that the culture of Orchids by amateurs is not more extensively practised in this ancient capital of the North, more especially so when it is remembered that York for a very long period has been the home of the nursery of Messrs. Backhouse & Son, a firm who, in their early days, placed many important Orchids on the market. The late Dr. Fred. Bedford got together at Dovercourt, York, a collection that was considered one of the finest in the north of England, and when it was dispersed many of the plants were purchased by A. C. Lister, Esq., of Thorpe Lodge, Malton Road, York, an amateur who within the short period of four years has acquired numerous plants of interest. He desires to maintain an assemblage of species that from various adverse circumstances are likely to go out of cultivation.

Among the interesting plants successfully grown by this amateur, Aërides crispum, crassifolium and virens are all noted for their handsome style of growth and the fragrance of their flowers. Anyone fond of the genus Angræcum will not be surprised to learn that there is here a nice plant of A. sesquipedale, as well as Leonis, with its curiously shaped leaves, and distichum, the latter having four growths. Not only are Anguloas and Bifrenarias to be seen, but Brassavolas and Brassias. Bulbophyllums include such interesting species as barbigerum, Careyanum, and the elegant virescens, to which a First-class Certificate was given by the Royal Horticultural Society.

Catasetum Bungerothi is not often seen, but its flowers well repay any extra attention required to produce them; C. macrocarpum is a Tropical American species, and both look like prospering in this collection. For a comparatively small collection, the genus Cirrhopetalum is unusually well represented, for there are nearly a dozen kinds; mention may be made of a dark variety of Collettii, the quaint Medusæ, maculosum and a nice plant of Roxburghii. There are also healthy plants of Cœlogyne pandurata, Dayana and speciosa.

Cattleyas are represented by several of the best-known species and there is a nice batch of various hybrids. Cypripediums are much more numerous and include the charming Maudiæ, callosum Sanderæ and Rossettii. Of bellatulum, niveum and Godefroyæ there are good examples, while among the attractive hybrids coming into flower are Leeanum superbum, Thalia var. F. Wellesley and Triumphans. Almost needless to state, there are well grown plants of insigne Sanderæ, insigne Harefield Hall, the charming Fairrieanum and St. Albans.

More than twenty important Dendrobiums are included in this collection.

There is Bolton's variety of atro-violaceum, said to be specially distinct, a nice piece of Findlayanum, the elegant Brymerianum, a plant of aggregatum majus consisting of ten bulbs, Kingianum album, with its small flowers, though they are very pretty, and pulchellum, a healthy plant consisting of about thirty bulbs. There are also good examples of nobile, arachnites and Victoria Regina, with its slate-blue flowers.

Lælia harpophylla is another rarity worthy of note, as also is the pretty Leptotes bicolor. Of the popular Lycaste genus, there are promising forms of lanipes, cruenta and aromatica, while the rarer Lawrenceana is sometimes considered a rosy form of candida. The collection of Masdevallias includes about thirty varieties, one of the finest plants being seen in M. O'Brieniana. These neat little plants take up only a small amount of room, yet the more their flowers are studied, so much the more are they appreciated. Many of them are now very rare, so it is pleasing to find an amateur cultivating so extensive a collection. Maxillaria nigrescens, Nanodes Medusæ and a healthy plant of Phalænopsis Lueddemanniana can also be mentioned, as well as several Odontoglossum species, a few Pleiones, some rare Restrepias, and a few brightly-coloured Odontiodas.

The cultivation of Oncidiums is also undertaken, and most of the representatives of this genus have been selected with regard to showy flowers. There is a fine plant of O. cheirophorum, always attractive, also concolor, with its drooping spike of bright canary-yellow flowers, a strong plant of bicallosum with eleven bulbs, cucullatum, Papilio and Kramerianum, the latter with large flowers of yellow and red-brown colour.

Another favourite plant in the autumn is Odontoglossum grande, and it is rather strange that such a large and showy flower has not by this time been the parent of several hybrids. However, Mr. Lister obtains good results from this well-known species. Other species worthy of note are Cattleya citrina, always a difficult plant to keep growing for any length of time, the pretty Lælia Dayana, easily distinguished from L. pumila by the coloured ridges in the throat, the handsome Stanhopea tigrina, and Broughtonia sanguinea. Among the taller growing kinds, there are examples of Vanda teres, and V. tricolor, as well as V. cœrulea. A plant bearing the name Pilumna nobilis is now generally know as Trichopilia fragrans var. nobilis. A Brazilian species is cultivated in Scuticaria Hadwenii, and a Colombian plant in Promenæa xanthina, formerly known in gardens as P. citrina.

Mr. Lister is full of enthusiasm and will doubtless do much in popularising the King of Plants in and around the city of York. His collection is at present contained in a house measuring 30ft × 8ft, but with the frequent acquiring of interesting Orchids, the near future will probably see the erection of additional glass.

R.H.S. AUTUMN SHOW OF ORCHIDS.

THE Royal Horticultural Society's special exhibition of autumn flowering Orchids was held at Westminster, on October 30th and 31st. The Society's Hall again proved an ideal place, and a large number of enthusiasts attended this important event. With the exception of Chelsea, Orchids have on no other occasion during the present year been so numerously staged. The general effect was magnificent, and a still finer sight might have been produced if greater space had been allowed. Some of the groups, more especially those at the end of the hall, appeared rather crowded, and insufficient space was given to clearly mark their respective limits.

Although a number of plants were entered for special awards by the Orchid Committee, not a single First-class Certificate was granted. This does not imply that the varieties presented were in any way inferior to those seen on past occasions, but, on the contrary, it proves that the high standard of the F.C.C. award is being maintained by restricting it to plants showing a meritorious advance. We feel sure that the higher the standard of this certificate, so much the more will it be sought after. Many plants staged in the various groups had received this certificate on previous occasions, and although some of them have not since been surpassed by finer results, no second granting of the award is allowed. We think it would be of interest, as well as of educational value to the uninitiated, if a ticket denoting any award previously given were to be attached to such plants at future exhibitions.

In the afternoon, Mr. Gurney Wilson gave a lecture on Orchid species and hybrids, illustrated by lantern slides and actual flowers.

ORCHID COMMITTEE.

Members present :—Sir Jeremiah Colman, Bart. (in the chair), the Hon. H. D. McLaren, Messrs. Jas. O'Brien (hon. sec.), Gurney Wilson, H. G. Alexander, J. E. Shill, Frederick J. Hanbury, Richard G. Thwaites, C. J. Lucas, S. W. Flory, A. Dye, H. T. Pitt, H. H. Smith, W. H. White, Clive Cookson, A. McBean, J. Wilson Potter, Pantia Ralli, W. J. Kaye, E. R. Ashton, J. Cypher, Chas. H. Curtis, Fred. K. Sander, and W. H. Hatcher.

AWARDS OF MERIT.

Odontonia Philosopher (M. St. Andre × Odm. Harwoodii), from H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A pleasing hybrid with flowers partaking after the shape of O. maculatum, contained n the latter parent, but larger, in colour bright yellow, evenly spotted with laret-red and with lines of similar colour on the labellum.

Sophrolæliocattleya Pervanch (C. Syros × Slc. Marathon), from H. T.

Pitt, Esq. This plant carried a spike of three flowers, the broad sepals and petals rose coloured and with a terra-cotta overtint, the labellum having the front area blotched with crimson.

Cypripedium Phantasy var. Sobriety (Glorita × Actæus), from H. T. Pitt, Esq. An elegant flower of yellowish colour deeply tinged with purple, except for the upper part of the dorsal sepal which is pure white.

Brassolæliocattleya Floss Flora (Lc. Soulange × Bc. Ilene), from H. T. Pitt, Esq. A fine flower of model proportions, in colour rosy-mauve, the lip crimson purple.

Læliocattleya Profusion (Lc. Serbia × C. Hardyana), from Messrs. J. & A. McBean. This is the best so far flowered of a very promising batch of seedlings; the segments are of a pleasing rosy-mauve colour, the lip darker and with a crimson overtint.

Odontoglossum Desdemona II. var. Rubens (Rossii × illustrissimum), from Messrs. J. & A. McBean. A charming and distinct hybrid, with flowers of deep rose colour, the segments spotted after the style of the Rossii parent, and the lip rose-pink.

Cattleya Pittportia var. Lady Leon (Mrs. Pitt × Portia), from Sir Herbert Leon, Bart., Bletchley Park, Bucks (gr. Mr. Chambers). A well cultivated plant, carrying two erect spikes, each with six medium sized flowers, and of a most charming colour, being rich magenta purple, the lip having a bright yellow central area.

GROUPS.

Baron Bruno Schröder, The Dell Park, Englefield Green (gr. Mr. J. E. Shill), was awarded the Large Challenge Cup for a magnificent group. High up in the centre of the back were noble plants of Læliocattleya Tiresias (Lc. elegans × C. Bowringiana), producing a fine array of a dozen erect spikes, each carrying about 25 flowers. Læliocattleya Triumphans bore flowers of intense yellow colour, and Lc. Ivanhoe was represented by a superb specimen bearing nine large flowers. Cattleya Princess Royal (Fabia × Hardyana) had as many as six flowers on a spike. At each end were many-flowered spikes of the handsome Dendrobium Phalænopsis, as well as of Calanthe Harrisii. Superb specimens of Cypripedium Maudiæ, each with about 25 flowers, came in for much praise. Blc. maculata bore flowers of amber-yellow colour, and along the front were pleasing varieties of Odontoglossum eximium xanthotes. A Silver-gilt Lindley Medal was awarded to Mr. Shill for excellence of cultivation.

Pantia Ralli, Esq., Ashtead Park, Surrey (gr. Mr. S. Farnes), was awarded a Gold Medal for a truly beautiful group. The centre was composed of numerous plants of Cattleya Fabia alba, as well as C. Hardyana alba; intermixed with them were many plants of Vanda cœrulea and Oncidium Marshallianum, the tall spikes of blue flowers of the former and

the golden flowers of the latter being so arranged as to stand naturally over the white and cream-coloured Cattleyas. At each end of this group were placed several fine forms of Lc. Schrœderæ, a pretty variety of Odm. amabile, and Oda. Brewii. Among the selected forms of Cattleya labiata were dark varieties with spikes of four flowers, and the Ashtead Park variety, with white flowers, the lip bright purple.

H. T. Pitt, Esq., Stamford Hill, was awarded the Small Challenge Cup for a meritorious group containing the richly-coloured Odontoglossum Purple Emperor, probably the finest of its kind, Læliocattleya Armada var. Antræs, a distinct hybrid with flowers of orange-yellow, the new Odontonia Philosopher, and several others that obtained awards. The pretty Cirrhopetalum Mastersianum, with flowers of copper-red colour, was also much noticed.

J. J. Joicey, Esq., The Hill, Witley (gr. Mr. J. Mackay), received a Silver-gilt Flora Medal for a very attractive group. Amongst the notable plants, mention may be made of Miltonia vexillaria Lambeauiana with a spike of nine pure-white flowers, a finely blotched Odontoglossum, with a spike of 15 flowers, and the rare Cœlogyne Veitchii. Cypripedium Ernest Read was in excellent condition, as also were Cyp. Fairrieanum, Cyp. Godefroyæ and Cyp. Germaine Opoix. Cirrhopetalums were well represented in C. Rothschildianum and C. gracillimum. Læliocattleya Linda was seen at its best, while the pretty little Oncidium longipes was also in the front row. Dendrobium Victoria Regina and Cattleya President Wilson were both well flowered.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), exhibited a pleasing selection of cut spikes. They included Cattleya Portia with 17 flowers, C. Browniæ, Gatton Park variety, with 16 flowers, and C. Ariel var. cœrulea, with an almost equal number, all of which were tinged with blue. In the centre was the rare Bulbophyllum lemniscatoides, with a tassel-like cluster of flowers. Cattleya Warscewiczii var. Britain's Queen was of delicate tinting, Læliocattleya Copper King bore flowers of a coppery-red colour, and Blc. Antoinette, Gatton Park variety, carried three broadly-developed flowers of rich rose-purple colour.

Messrs. Charlesworth & Co. were awarded a Gold Medal for a group occupying 250 square feet, and containing a wide collection of their well-known hybrids. The centre was composed of Odontoglossum crispum of the Doinii type, as well as of the xanthotes variety. Along with these were well flowered examples of O. Wilckeanum aureum, and other yellow blotched hybrids. Phalænopsis amabilis bore attractive spikes and Eulophiella Rolfei a number of rose coloured flowers. Handsome Cattleyas were seen in Selma, while Læliocattleyas were represented by Golden Wren, St. George, and Mrs. Hanmer. A rarity was staged in Lælia

Perrinii nivea. Miltonias were in fine form and included Phalænopsis and Charlesworthii. Novelties included Odontonia Dora, with flowers of rose-pink colour, and Miltonioda Edna. A fine hybrid was seen in Blc. Camada, of apricot-yellow colour, and a good example of cultivation in Sarcopodium Cœlogyne.

Messrs. Sanders received a Gold Medal for a grand group comprising numerous varieties of Cattleya Fabia, the one called Dreadnought having broad segments of extra dark colour. C. Dupreana alba bore a spike of three white flowers, and other choice albinos were seen in C. Alcimeda alba, C. Enid alba, and Lc. Britannia alba. Cattleya Vishnu carried a spike of four pure-white blooms. A new Cymbidium hybrid was staged in C. Proserpine (erythrostylum × Schlegelii), and among the Brassavola hybrids were pretty forms of Bc. R. Seymour Fannin, averaging three flowers to the spike, and Bc. Boadicea, with large flowers of a delicate colour. A charming Cypripedium was exhibited in Cyp. Gwen Dixon, and there were fine examples of Phalænopsis Rimestadiana, as well as of Vanda cœrulea, the variety of the latter named Sapphire being very pretty.

Messrs. J. & A. McBean received a Gold Medal for a well-arranged group. In prominent places we noticed the pretty Cattleya Æneas, with four golden-yellow flowers, the handsome C. Hardyata (Hardyana × Fabiata), with rich rose-purple flowers, C. Enid alba, very pretty, C. Prince John, with bright yellow isthmus to the lip, Lc. Vega of fine form and colour, a series of the new Lc. Profusion (Lc. Serbia × C. Hardyana) which appears to have a robust constitution, and Slc. Rainbow, of bronze-crimson tints. Cypripediums were in excellent condition and comprised the handsome Izonzo, and some beautiful clear yellow varieties of a cross between insigne Laura Kimball and insigne Sanderæ. Læliocattleya Linda, of soft terra-cotta colour tinged with rose, looked a promising hybrid, Lc. Alaric had yellow flowers, with crisped petals, and Lc. Nelius was golden-yellow. A large-flowered variety of Brassocattleya Lisette stood out prominently.

Messrs. Stuart Low & Co. were awarded a Silver-gilt Flora Medal for an extensive exhibit comprising a wide selection of Læliocattleyas, noteworthy examples being Linda, of pleasing colour, Firenze, with cream coloured sepals and petals and a purple lip, Mrs. Medo, bright yellow, with reddish lip, and varieties of luminosa of bronze-red colour. Cattleya labiata was seen in the distinct varieties called The Sultan, cœrulea, R. I. Measures and Amesiana, the latter with a spike of four well-developed flowers. Dendrobium Phalænopsis and Vanda cœrulea were in fine form. A rarity was seen in Lælia Perrinii nivea, and an interesting hybrid in Cattleya Aquinii var Ethel, with petals flushed with purple as in the Aquinii variety of C. intermedia. Cypripediums embraced the new C. Ijuin (Actæus × Tracyanum), and specimen plants of insigne Sanderæ.

Messrs. Cowan & Co. were awarded a Silver-gilt Flora Medal for an elegant arrangement of fine Cattleyas, one of the best being amabilis alba, with large white flowers having purple mottling on the lip. C. Luegeæ and C. Tityus were also represented by superb varieties, and C. Peetersii alba carried a spike of five well-developed flowers. Læliocattleyas embraced the pretty Favonius, the yellow-petalled luminosa aurea, Maqueda with four flowers having a dark purple lip, and Mrs. Chandler, the latter carrying a spike of four richly coloured flowers. Brassocattleya British Queen was seen with a large flower of delicate pink tinge, and in another of darker colour. A number of the best Cypripediums were also staged, they included the handsome Pallas Athene, the large Dreadnought, Alcimeda, and specimens of insigne Sanderæ. Vanda cœrulea was in fine form, and Cattleya Hardyana alba well represented.

Messrs. Cypher & Sons received a Silver Flora Medal for a group of interesting species and attractive hybrids. Among the former were several specimen plants of Dendrochilum Cobbianum, the pretty Cirrhopetalum Fascinator, with five flowers, Bulbophyllum barbigerum, the richly-coloured Masdevallia calura, a large plant of Trichosma suavis, dark varieties of Cypripedium Fairrieanum and the rare Restrepia Falkenbergii. The Cattleyas included Astron, with pure-white flowers, several distinct varieties of Fabia and Hardyana, as well as Peetersii alba, the latter carrying seven flowers, and Priam, with six large blooms. Cypripedium Bianca was well staged, and Selenipedium grande macrochilum attracted much attention on account of its long-tailed petals.

Messrs. Flory & Black were awarded a Silver Flora Medal for a neatly, arranged exhibit of choice Cattleyas, these including pretty forms of Fabia alba, distinct varieties of G. P. Walker and of Dr. M. Lacroze. Læliocattleyas were well represented by the beautiful Carmencita, the yellow coloured Rex, a selection of Soulange, and Comet var. Princess Mary. A novelty was seen in Lc. Phantasy (Lc. Thyone × C. Maggie Raphael). Brassocattleyas added attractive points, the best being Olympus, with a large flower, Menda, with prettily fringed labellum, Rosita and Mars. Several elegant Cypripediums were also included, among them being Senator, the new Phantasy, a brightly coloured variety of Golden Sunset Hypericum and the popular Maudiæ.

Mr. Harry Dixon received a Silver Banksian Medal for a pretty group containing several uncommon species and choice hybrids. Lælia Dayana delicata and Cypripedium Godefroyæ were well placed in the front row, and behind them a batch of Cyp. insigne Sanderæ. Other Cyps. were Triumphans with six well developed flowers, and the attractive Thalia, also in good form. In the centre were fine varieties of Dendrobium Phalænopsis and strong plants of Calanthe Veitchii. Cattleyas were best represented by

Drapsiana, with brightly coloured flowers, while along the back were numerous Odontioas, pleasing Odontoglossum hybrids, and nice forms of Od. crispum.

Messrs. Mansell & Hatcher received a Silver Banksian Medal for a small group, in which were varieties of Miltonia Bleuana and M. vexillaria. Cattleya Mantinii nobilior was in fine form, and Cypripediums were seen in eboraicum and the pretty Maisie.

ROYAL HORTICULTURAL SOCIETY.

November 13th, 1923.

MEMBERS of the Orchid Committee present :—Sir Jeremiah Colman, Bart. (in the chair), Sir Fred. W. Moore, Jas. O'Brien (hon. sec.), Messrs. C. J. Lucas, Fred. K. Sander, H. G. Alexander, C. H. Curtis, H. T. Pitt, W. J. Kaye, Richard G. Thwaites, Stuart H. Low, Gurney Wilson, Henry H. Smith, J. Wilson Potter, and A. Dye.

FIRST-CLASS CERTIFICATE.

Odontoglossum Ithone (Aglaon × Dusky Monarch), from Messrs. Charlesworth & Co. A very remarkable result and by far the best of its kind yet seen. The spike carried eleven flowers, the segments being nearly covered with crimson-brown blotching, but the central area of the blotches is so diminished in colour as to give a stained-glass window effect.

A Silver-gilt Lindley Medal was awarded to Odontoglossum Purple Emperor exhibited by H. T. Pitt, Esq. This noble variety has already received a First-class Certificate. On the present occasion three large flowers were produced from the basal part of the spike made last spring.

GROUPS.

Messrs. Stuart Low & Co. were awarded a Silver Banksian Medal for an attractive exhibit containing fine examples of the new Brassocattleya Ruby Glow (C. Leda × Bc. Mrs. J. Leeman), a fine selection of Dendrobium Phalænopsis, the typical Lc. luminosa, with flowers of reddish-bronze colour, the pretty Lc. Golden Oriole with flowers of bright orange yellow, Cattleya Moira, with richly-coloured blooms, C. Annettee, with a spike of four white flowers, the lip purple, C. Fabia alba, C. Bellona, and C. labiata var. reedleyensis, in fine form with three pure-white flowers. One of the finest of Sophronitis hybrids was seen in Sc. Sir Mervyn Buller, of soft reddish-terra-cotta colour. Odontoglossum Phœbe and Cypripedium Maudiæ were both well flowered.

Messrs. Cowan & Co. were awarded a Silver Banksian Medal for a well-arranged group containing several elegant Brassavola hybrids, the best being Bc. British Queen and Blc. Muriel. Cattleyas comprised the elegant Cecelia, pure-white with lemon-yellow in the throat, and Portia, Appleton's

var., of rich colour. Among the Læliocattleyas were fine varieties of Hassallii, white with a purple lip, and Nanon, of rose-pink colour and the mid-rib of the petals deep-purple, and Robertsoniæ, produced by crossing Lc. luminosa aurea with C. Maggie Raphæl alba, the flowers being yellow with rose-purple marking on the lip. Cypripediums were numerous, and included Ballyhandy, Moonbeam and the new Clytemnestra (Æson × Gaston Bultel).

Messrs. J. & A. McBean staged several fine varieties of the new Lc. Profusion, a most promising hybrid. Cattleya Brenda, with white flowers, and Cattleya Warscewiczii var. Fairy Queen were also shown, the latter flowering for the first time, and of a delicate blush colour, the lip marked with light purple. Miltonioda Hilda carried a spike of nine crimson-rose flowers.

Messrs. Sanders exhibited Brassocattleya Boadicea var. Verulam, with large flowers of rose-pink colour. Also Cypripedium Goldcrest (insigne Sanderæ × Monte), yellow, with white upper part of the dorsal sepal, the petals slightly marked with brown.

Messrs. Armstrong & Brown staged Læliocattleya Ensign (Lc. Orion × C. Fabia), with flowers of varying rose-pink tints shaded with purple, and the labellum reddish.

Messrs. Charlesworth & Co. staged Odontoglossum Fabia, large and distinctly marked, Vuylstekeara Edna with a beautiful spike of thirty scarlet-red flowers.

MANCHESTER ORCHID SOCIETY.

October 18th, 1923.

MEMBERS of the Committee present :—Rev. J. Crombleholme (in the chair), Messrs. R. Ashworth, J. Birchenall, A. Burns, A. Coningsby, J. Cypher, J. Evans, J. Howes, W. Morton Jackson, A. Keeling, D. McLeod, E. W. Thompson, and H. Arthur (secretary).

FIRST-CLASS CERTIFICATES.

Cattleya Mrs. Gratrix (Lady Veitch × intertexta var. Juliettæ), flower of good form and texture, pure-white, with deep-yellow throat; from S. Gratrix, Esq.

Odontoglossum crispum var. Orestes, full round flower, thick substance, and with a deep blotch of colour on the large flat lip; from P. Smith, Esq.

AWARDS OF MERIT.

Cattleya Venus, Orchidhurst var., and Læliocattleya Appam var. Golden Crown; from S. Gratrix, Esq.

Odontioda Helma (parentage unknown); from P. Smith, Esq.

CULTURAL CERTIFICATES.

Mr. A. Burns, for Epidendrum vitellinum autumnale and Cattleya Pertin. Mr. J. Howes, for Brassocattleya Penelope and Lc. Appam var. Golden Crown.

GROUPS.

S. Gratrix, Esq. (gr. Mr. J. Howes) was awarded a large Silver-gilt Medal for a group containing a selection of Cattleya hybrids, among them being the new C. Mrs. Gratrix, the Orchidhurst variety of C. Venus and C. Boadicea. Some fine varieties of Odm. crispum were also staged.

A Silver-gilt Medal was granted to Mrs. Bruce and Miss Wrigley (gr. Mr. A. Burns) for a group consisting principally of Epidendrum vitellinum autumnale, all of which were well flowered. Cypripedium insigne Sanderæ and Oncidium cheirophorum were in fine condition.

Messrs. Cypher & Sons were awarded a Silver Medal for a group of Cypripediums in variety, as well as the pretty Cirrhopetalum fascinator, Miltonia, Regnelii, and others.

Mr. D. McLeod, Chorlton-cum-Hardy, staged various Cypripediums and Odontoglossums.

R.H.S. ORCHID EXHIBITION.—Why was the R.H.S. Orchid Show not noted as a special exhibition of these plants? On the first day many of the visitors were agreeably surprised to see such a magnificent display of Orchids, but on the second day the attendance was comparatively poor, and visitors were not backward in asking why information had not been given them as to its special nature. Apparently it had not been advertised in any way, or many more would have attended. The second day of the Chrysanthemum Show was crowded, too much so for comfort, interested people having made special journeys to see the blooms. This would surely have been the case with the Orchid days, had they been specially announced as such.—K.

YORKSHIRE GALA.—Difficulties have unfortunately arisen with regard to a suitable field for holding the well-known Yorkshire Gala. For the past few years the Orchids at these events have been steadily improving, while their culture has been encouraged by the Gala Committee. For this reason alone it will be very regrettable if the idea of a Show in 1924 will have to be abandoned.

ORCHID SEEDLINGS.—At the recent Nottingham Show, Messrs. Mansel & Hatcher illustrated the development of a hybrid Orchid from the seed-pod to the flowering plant.

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